THE NEW

FAMILY RECEIPT BOOK

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THE NEW

FAMILY RECEIPT BOOK,

CONTAINING ONE THOUSAND

TRULY VALUABLE RECEIPTS

IN VARIOUS BRANCHES OF

DOMESTIC ECONOMY.

A NEW EDITION, CONSIDERABLY IMPROVED.

LONDON:
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ADVERTISEMENT.

In preparing a new edition of the Family Receipt Book, the editor has spared no effort to render the work more worthy of the increasing favour of the public; and in recasting the contents for the press, he has endeavoured to introduce a more methodical arrangement, by which it is hoped that every receipt will be readily found under its appropriate head. In order to render the present work a more complete domestic repository of useful knowledge, an important addition has been made in a small but comprehensive collection of medical receipts, adapted for those sudden emergencies which so often occur, requiring immediate relief. It is not intended by this short medical compendium to interfere with, more elaborate treatises, or to supersede the necessity of consulting professional advice; but it will often happen that an opportunity is irreparably lost from the delay which must necessarily elapse before any professional assistance can be obtained; and it may often happen that circumstances render it inconvenient to secure regular professional attendance. In such cases, it seems to be desirable that every family should be furnished with a few plain directions for administering help, where help, to be effectual, must be immediate; and for treating those common complaints which may safely be trusted to domestic management.

PREFACE.

THE Collection of Domestic Receipts now presented to the public could not have been formed in any age but the present. The wisdom of this age has been to bring science from her heights down to the practical knowledge of every-day concerns; and the number of its inventions and discoveries have kept pace with the increasing wants of man. Of the past we preserve what experience has sanctioned, and what improvement has rendered more perfect; but we can add much more from our own stores. Scientific men, in the present day, who choose to be useful as well as celebrated, have studiously noticed facts, and formed discoveries, which can only be appreciated in the domestic circle; they have written such Receipts with the zeal which is felt by a good housewife—an honest farmer—an ingenious mechanic—and the various artizans of useful and ornamental trades.

The Editor of this Collection, at a very distant period, had amassed for his private use a number of practical Receipts; but of late, the rapid diffusion of new discoveries, authenticated by the most respectable names, has been such, that his collection grew every day in bulk and in value. He was proud to see, in a Family Receipt-book, the names of persons eminent for their science. His collection was further augmented by MSS. which he had purchased; and he is particularly obliged by the advice and aid he has derived from the much-respected Secretary of the Society of Arts, Manufactures, and Commerce.

The popular treatise on "Domestic Cookery," that admirable introduction to the science, which

Milton calls "household good," naturally connected itself in the Editor's mind with this volume, to complete the economy of every domestic establishment.

We conclude this Preface with the plain homely words of our honest predecessor, the venerable TUSSER, in his "Five Hundred Points of Good Husbandry."

> "What lookest thou? speak at the last;
> GOOD LESSONS FOR THEE, AND THY WIFE?
> Then keep them in memory fast,
> To help as a comfort to Life."

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PART I.

AGRICULTURE.

1. *Advantage of planting Waste or Boggy Lands with Alder.*

Alder thrives wonderfully in swampy grounds, and its uses are so various as to adapt it to an almost endless variety of purposes. The wood of this tree is in great esteem and demand for machinery; the cogs for mill wheels formed of it, being proved, by experience, to be superior to any other. It is commonly used for bobbins; and the country people wear shoes, or, as they are generally termed, clogs, made of it. Its excellent quality of resisting injury from water is universally acknowledged; hence its great value for pump-trees, pipes, drains, conduits to reservoirs, piles under water, and all kinds of wood work which is kept constantly wet. It is much to be lamented, that the valuable properties of its bark should be so little known, that in most instances it is buried with the tree. The black dyers of cotton stuffs know its value, and make much use of it; they purchase it at the rate of seven to eight-pence the stone, laid down at their dye-houses. It is not chopped, but sold as it is stripped from the tree, after it has become moderately dry; so that there is no expense in chopping and cleaning it, as is the case with oak bark. It might be used to great advantage as an excellent substitute for many woods used in dying, which we have from abroad, and on which we expend considerable sums.

2. *To prevent much Mischief to Sea Embankments, or those of Rivers.*

Where a breach is actually made therein, it may be prevented from increasing in width, by an early application of old sails fastened to each side of the breach where the water enters, which will allow the water to slide over them, and hinder more of the earth from being carried away.

---

3. *Useful Hint, whereby Farmers may make a Saving in the Article of Thatching.*

The barns and tenements of many farmers holding on lease, and obliged to repair, being thatched, and sudden winds sometimes making much thatching necessary, farmers would do well to make a rick of wheat straw, except it happens to be very short, and then they would keep their stack two years, and make a new one the second.

The author of this article says, that though he not only ricks his straw, but slightly thatches his rick to keep out the weather, he has, in ten years, gained 53*l.* by the practice, beside what he saved by not being obliged to thrash wheat for straw at an improper season.

4. *Curious Mode of making Earthen Barn-Floors.*

Many of the barns in the Cotswold Hills, or Wolds of Gloucestershire, have a species of earthen floor which is generally thought to surpass floors of stone, or any other material except sound oak plank. Their superior excellence is partly owing to the materials of which they are composed, and partly to the method of using them for this purpose. The materials are equal parts of a kind of ordinary gravel, the calcareous earth of the subsoil, as found in different parts of these hills; and the chippings of free-stone, or calcareous granite, from the free-stone quarries. The principle of making these barn-floors is, perhaps, at least in Great Britain, peculiar to these hills. In other parts of the United Kingdom, earthen barn-floors are always made with wet materials; a kind of mortar, which is liable to crack as it dries, and which requires drying for some months after being made, before it grows hard enough for use. Here, on the contrary, the materials are worked dry; of course they do not crack, and are ready for use immediately on their being finished. The process commences by mixing the above materials together in equal quantities, and twice sifting them: the first time through a wide sieve, to catch the stones and larger gravel, which are thrown to the bottom of the floor; the next, through a finer sieve, to separate the more earthy parts from the finer gravel, which is spread on the stones. Above that are then regularly distributed the more earthy parts; trimming down, closely and firmly on each other, the different layers, and making the whole about a foot in thickness. The surface being levelled, is next beaten with a flat wooden beetle, made like a gardener's turf beater, till the floor becomes as hard as stone, and rings at every stroke like metal. These floors are extremely lasting; being equally proof against the besom and the flail. The materials, it is true, cannot be procured in many districts; but, the principle of making barn-floors with dry materials being kept in view, other substances may, on a fair trial, be found to answer the same purpose. This practice of hardening earthen floors, &c. by excessive beating, is practised in several parts of the world; and in the kingdom of Naples, as well as in the island of Malta, where the tops of the houses are constantly flat, the cement of which they are composed, though sprinkled with water, in that warm climate, is rendered so hard and dry, as well as so compact, smooth and even, by continued beating, that the rain is carried off from them with the same freedom as from any flat leaden or copper roof, without being at all subject to any sort of corrosion. The lime ash-floors in Devonshire, made of the refuse of the lime-kilns, and ash of the Welch stone coal, with which the lime-stone is burned, are of a similar kind.

5. *To make durable Barn-Floors.*

A durable barn-floor may be made of well-burnt polished brick on edge, placed in the herring-bone form, on a pavement of stone three inches and a half in thickness; or oaken plank two inches and a half in thickness; or even of well-tempered indurated loam, of a proper substance, not less than eight inches, and laid upon dry materials, or bottom. Any of them will make a durable barn-floor, provided it is kept free from wet, waggon-wheels, and horses' feet. The best thrashing-floor for small farms of 150 acres is made of sound plank. In larger farms (say 300 acres and upwards) the thrashing machine should supersede the flail.

6. *The Virtues of Poplar Wood for the Flooring of Granaries.*

The Lombard poplar is recommended as a timber adapted for flooring granaries, which is said to prevent the destruction of corn by weevils and insects. Poplar wood will not easily take fire.

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7. *To keep Ponds and artificial Pieces of Water free from Weeds.*

At the Marquis of Exeter's seat, near Burghley, there is an artificial piece of water, about a mile in length, which used to be so over-run with weeds, that three men were employed constantly, for six months in every year, to keep them under; in which they never perfectly succeeded. About seven years ago, two pair of swans were put on the water; they completely cleared away all the weeds the first year, and none have appeared since, as the swans constantly eat them before they rise to the surface.

3. *Easy and expeditious Method of dissipating the noxious Vapours found in Wells, &c. By Ebenezer Robinson, of Philadelphia.*

(From the "Transactions of the American Philosophical Society.")

After various unsuccessful trials, I was led to consider how I could convey a large quantity of fresh air from the top to the bottom of the well, supposing that the foul would necessarily give way to the pure air. With this view, I procured a pair of smith's bellows, fixed in a wooden frame, so as to work in the same manner as at the forge. This apparatus being placed at the edge of the well, one end of a leathern tube (the hose of a fire engine) was closely adapted to the nose of the bellows, and the other end was thrown into the well, reaching within one foot of the bottom. At this time the well was so infected, that a candle would not burn at a short distance from the top; but, after blowing with my bellows only half an hour, the candle burned bright at the bottom: then, without further difficulty, I proceeded in the work, and finished my well.

Wells are often made in a very slight manner, owing to the difficulty of working in them, and there have been several fatal instances of the danger attending the workmen; but by the above method there is neither difficulty nor danger in completing the work with the utmost solidity.

It is obvious, that in cleaning vaults, and working in any subterraneous place subject to damps, as they are called, the same method must be attended with the same beneficial effects.

9. Manure for Clover.

Some farmers make it a rule to spread about fifty bushels per acre of ashes over their clover in March, which they find, from long experience, to be a good manure for this grass. Wood-ashes will be useful on any soil; coal-ashes chiefly on stiff clays. On the stiff soils of some parts of Buckinghamshire, ashes of all kinds are much esteemed, and have risen to a high price.

10. Utility of Pigeons' Dung as a Manure.

Pigeons' dung will improve moist meadows very much by extirpating bad kinds of grasses, bringing white clover in its stead, and augmenting the crop.

11. For Compost Dunghills.

Mix one hundred loads of earth with ten chaldrons of lime (a chaldron is thirty-six bushels) about May; let them lie together until the lime has fallen, but not run to mortar; then turn it over; lay seventy loads of stable dung close to it. When the dung is in a high putrid heat, which will perhaps be in four months, lay a layer of this and a layer of earth, two-thirds of manure to one of earth, and so go through the hill;

turn it over in the spring, and lay it on in March or April; eight loads on an acre of grass.

12. *Another Compost.*

Mix lime and earth as before, and turn it; then cover it with soil from privies, and coal ashes about one-third in quantity: lay it on the top for some months, in an oblong heap: then turn, and mix all together, letting it lie some months longer; and lay about eight loads on an acre of grass.

13. *Experiment in manuring Land.*

As a farmer, like a chemist, should lose none of his materials, but even make his washings, runnings, and residuums, turn out to his advantage, I have sent you some account of an experiment I have made in manuring of land, which I beg you will lay before the committee of agriculture, that they may communicate it to others.

I am possessed of a farm of near three hundred pounds a year, and have in my yard what you usually see in most farmers' yards, two recesses or pools, as reservoirs of dung and water. These reservoirs of dung and water are continually running over, and of course part of the matter contained in them is carried off by the necessary drains into the highways, ditches, and rivers.

As much of the essential quality of the dung is lost in this manner, (for part of the salts, whether fixed or volatile, will be washed into the pools, and when they run over, will be conveyed into the ditches, &c.) I thought it a part of good husbandry to carry this superabundant water or manure (for so we may justly call it), on my land, which I did by means of a watering-cart, not unlike those with which the roads near London are watered in summer-time, to allay the dust.

That the experiment might be the more obvious and certain, I first tried it in the beginning of March, on a few acres, in the middle of a large field of wheat, where, in a little time, I found a considerable increase in growth, both of grass and grain; and at hay-time and harvest, both the one and the other were much better crops than what the same lands produced that were not so manured.

As a man, or even a boy, with one of these carts, and one horse, may manure a great deal of land in a day, provided it be near the yard, I would recommend the practice to all farmers; for the expense is nothing but the value of the time of the boy and horse, and the increase by what I have seen will be very great.

This manure may be also laid to great advantage on land, that is fresh sown with barley, oats, or any other grain; but on grass it should be laid in the winter time, when the rains will wash the salts off the blades; or in the spring, when the lands are laid up for hay, as the cattle will not feed on the grass while the dung or salt adheres to the blade of it.

This dung water should likewise be carried on the land, not at a time when it rains, but in dry weather, and at a time when the dung water in the pools is of a deep brown colour, and strongly impregnated with salts. By this means the land may be manured from time to time, and the pools kept almost empty for the reception of fresh matter almost every time it rains, and nothing will be lost.

14. *Dr. Taylor's Easy Method of ascertaining the Qualities of Marle, Lime Stones, or Quick Lime for the Purposes of Agriculture.*

This was a communication by Dr. Taylor to the Manchester Agricultural Society; the general use of marle and lime, as manures, having prompted him to point out the importance of an easy and certain method of determining the qualities of different earths and stones, and ascertaining the quantity of calcareous earth in their composition; their value, in agriculture, commonly increasing in proportion to the greater quantity of it which they contain. The process recommended is thus described.—The marle or stone being dried, and reduced to powder, put half an ounce of it into a half pint glass, pouring in clear water till the glass is half full; then gradually add a small quantity of strong marine acid, commonly called spirit of salt, and stir the mixture well together. As soon as the effervescence thus excited subsides, add a little more marine acid: thus continuing the operation while any of the earthy matter appears to dissolve, and till the liquor, after being well stirred and allowed to stand for half an hour, appears sensibly acid to the taste. When the mixture has subsided, if the liquor above it be colourless, that marle or lime-stone is the best which leaves the least in quantity of sediment or deposit at the bottom of the glass. This experiment is sufficient to determine which of the samples tried is most proper for the uses of agriculture: as pure calcareous earth or lime, which is the earth useful in agriculture, will be entirely dissolved; but clay or sand will not be sensibly acted on by the acid. Where great accuracy is required in determining the experiment, lay a soft spongy paper, of which the weight is exactly taken, in an earthen colander—for no metallic vessel, or implement for stirring, &c. must be used in any part of the process—and, pouring the saturated mixture of earth and acid on it, let all the liquor filtre through; then pour a little clear water over the earthy matter remaining on the filtre; and, when that water has also filtered through, dry the paper with the earthy matter on it which remains undissolved, when the deficiency found, on weighing them, from their original weight, will discover what portion of the marle or lime has been dissolved in the acid. What quantity of earthy matter has been dissolved may be made evident to the sight, by gradually adding, to the liquor which has been filtered through the paper, a clear solution of pearl-ashes, or ashes of burnt wood; this will occasion a precipitation of the contained lime or calcareous earth to the bottom of the vessel, which precipitate must be dried and weighed.

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15. *To preserve Seeds, when sown, from Vermin.*

Steep the grain or seed three or four hours, or a sufficient time for it to penetrate the skin, or husk, in a strong solution of liver of sulphur.

16. *Striped Grass recommended for Hay.*

The Indian striped or riband grass, which is cultivated in gardens, would answer admirably for hay. In rich grounds plants are frequently four feet high; what a burden of hay would a field so cropped produce! Cattle are exceedingly fond of it; the seeds are easily saved, so that a person might soon have enough for a rood, and from that save again and again, for as many acres as he might choose. It is probable that the crop might be much too large to be made on the field where it grew; but if so, it would be worth while to carry part into another field.

17. *When to cut Rye-Grass for Hay.*

Rye-grass, if mown for hay, should be cut when in blossom, and not green. The hay made from it does not heat or sweat so much, and is very good for horses, but not for sheep and cattle. If it is suffered to stand too long before it is cut, the seeds rob the plants of their juices, and leave it no better than wheat or rye-straw.

18. *To prevent the Smut in Wheat.*

The means (to prevent smut) are simple; and no other than immersing the seed in pure water, and repeatedly scouring it therein, just before it is sown or dibbled in. Whether well, spring, or river water be used, is indifferent; but repeated stirring and change of water is essential to remove the possible particles of infection that may have imperceptibly adhered to the seed; thus purified, the subsequent crop will be perfect in itself, and seed successively so likewise, if there be no adjacent fields from whence this contamination may be wafted.

The addition of any alkaline or earthy salt, by increasing the specific gravity of the water, is of advantage in floating off the unsound grains, and after the seed is washed, it should be dried immediately by rubbing it with newly slacked lime.

19. *Fertilizing Steeps for Turnips, Wheat, or Barley.*

Steep turnip-seed twelve hours in train oil, which strain through a fine sieve, and immediately thoroughly mix the quantity of seed you would wish to sow on an acre, with three bushels of dry loamy earth, finely sifted, which drill (or sow) as soon as possible; and when the plants begin to appear, throw a small quantity of soot over them.

20. *Steep for Wheat, Barley, or other Grain.*

Put a peck and a half of wood-ashes, and a peck of unslacked lime, into a tub that will hold forty gallons; then add as much water as will slake the lime, and render the mixture into the consistence of stiff mortar. In this state it should remain ten or twelve hours; then add as much water as will reduce the mortar to a pulp by thorough stirring. In this state fill the tub with water, and occasionally keep stirring for two or three days. After which, draw off the clear lye into an open vessel, and gradually put the grain into it: skim off the light grains; and after the corn has been steeped three hours, spread it on a clean floor to dry, when it will be sufficiently prepared for drilling or sowing. The lye will retain its full virtue, and may be repeatedly used.

Remark.—It has been doubted whether steeps are of any use, except so far as they facilitate the separation of the light grains, and wash off the seeds of the parasite plants, which are thought to occasion smut, &c. In the best cultivated parts of Scotland, seed wheat is steeped in stale urine, or in a brine made with common salt, which, by increasing the specific gravity of the water, floats the unsound grains. The seed is well washed, and then dried by mixing it with fresh slacked lime, and rubbing it briskly with a wooden shovel. The quick lime and rubbing is thought to assist in cleansing the seed; but, independent of that, the mere drying the seed quickly is convenient.

21. *To sow Wheat to Advantage, without laying on Manure.*

It has been found expedient sometimes to sow wheat without laying on any manure; and, in the beginning of February, to collect twenty bushels of lime, unslacked, for every acre, and forty bushels of sand, or the rubbish of a brick-kiln; then, about the end of the month, to slake the lime, which doubles the measure, and mix it well with the sand, and immediately afterwards to scatter it by way of top-dressing over the green wheat. As rain generally succeeds, it is soon washed down to the roots of the plants, and gives them a vigour and strength, which, to those who never made the experiment, is astonishing. The lime, sand, and rubbish, are particularly useful in breaking the tenacity of stiff clays. In a clay soil, where coal was very cheap, the clay was slightly burned in the field, and spread over the surface, as the cheapest way of subduing the coarseness and stiffness of the soil. The refuse or rubbish from mines in the neighbourhood has been burned, and applied with advantage on the same principle.

22. Approved Method of sowing Wheat on narrow Ridges.

The seedsman should walk up one side of the bed and down the other side, always keeping his face, and the hand with which he sows, towards the bed he is sowing; his eye must be continually on the edge of the opposite interfurrow, and deliver his seed principally on the side of the bed next to it; as he returns, the sides will of course be reversed, and the beds become evenly seeded.

23. Great Utility of sowing Buck-Wheat.

In light lands buck-wheat may be raised to great advantage, as a lucrative crop. When green it is a fine feed for milch-kine, and when ploughed is a fine preparation for the land. It fattens pigs with great economy, and, passed through the mill, is, with carrot, a capital feed for work horses. The seed is excellent food for poultry, and when ground makes good bread.

24. To keep Crows from Corn.

Take a quart of train oil, as much turpentine and bruised gunpowder, boil them together, and when hot, dip pieces of rags in the mixture, and fix them on sticks in the field. About four are sufficient for an acre of corn.

25. Proper Soil for the Culture of Turnips.

Sandy loams, in good heart, are most favourable to their growth, though they will thrive well on strong loams, if they are not wet; but on clayey, thin, or wet soils, they are not worth cultivating; for though a good crop may be raised on such ground, when well prepared and dunged, more damage is done by taking off the turnips in winter, in poaching the soil, than the value of the crop will repay.

26. *Instructions for raising Potatoes to Advantage.*

The earth should be dug twelve inches deep, if the soil will allow it; after this, a hole should be opened about six inches deep, and horse dung, or long litter, should be put therein, about three inches thick; this hole should not be more than twelve inches diameter. Upon this dung or litter, a potatoe should be planted whole, upon which a little more dung should be shaken, and then the earth must be put thereon. In like manner the whole plot of ground must be planted, taking care that the potatoes be at least sixteen inches apart. When the young shoots make their appearance, they should have fresh mould drawn round them with a hoe; and if the tender shoots are covered, it will prevent the frost from injuring them; they should again be earthed when the shoots make a second appearance, but not covered, as, in all probability, the season will be less severe.

A plentiful supply of mould should be given them; and the person who performs this business should never tread upon the plant, or the hillock that is raised round it, as the lighter the earth is the more room the potatoe will have to expand.

A gentleman obtained from a single root, thus planted, very near forty pounds weight of large potatoes; and, from almost every other root upon the same plot of ground, from fifteen to twenty pounds weight; and, except the soil be stony or gravelly, ten pounds, or half a peck, of potatoes may almost be obtained from each root, by pursuing the foregoing method.

27. Preparation for Carrots and other winged Seeds.

Take two bushels of dry loamy earth, finely sifted; to which add one bushel of bran, and a sufficient quantity of carrot seed, cleaned from stalks, and well rubbed between the hands; all which thoroughly mix together, and drill (or sow). The carrot seed will stick to the bran, which, with the earth, will be regularly discharged.

28. Important Discovery relative to the Preservation of Corn.

To preserve rye and secure it from insects and rats, nothing more is necessary than not to winnow it after it is thrashed, but merely separate it from the straw, and to stow it in the granaries, mixed with the chaff. In this state it has been kept for more than three years without experiencing the smallest alteration, and even without the necessity of being turned to preserve it from humidity and fermentation. Rats and mice may be prevented from entering the barn, by putting some wild vine or hedge plants upon the heaps; the smell of the wood is so offensive to these animals, that they will not approach it. The experiment has not yet been made with wheat and other kinds of grain, but they may probably be preserved in the chaff with equal advantage. It must however be observed, that the husks and corns of rye are different from most other grain. It has been sown near houses where many poultry were kept, for the purpose of bringing up a crop of grass, because the poultry do not destroy it, as they would have done wheat, oats, or even barley in the same situation.

29. *To preserve Corn in Sacks.*

Provide a reed cane, or other hollow stick, made so by gluing together two grooved sticks; let it be about three feet nine inches long; and that it may be the easier thrust down to the bottom of the corn in the sack, its end to be made to taper to a point, by a wooden plug that is fixed in, and stops the orifice. About one hundred and fifty small holes, of one-eighth of an inch in diameter, are to be bored on all sides of the stick, from its bottom for about two feet ten inches of its length; but no nearer to the surface of the corn, lest too great a proportion of the air should escape there. By winding a packthread in a spiral form round the stick, the boring of the holes may be the better regulated, so as to have them about half an inch distant towards the bottom, but gradually at wider distances, so as to be an inch asunder at the upper part; by which means the lower part of the corn will have its due proportion of fresh air. To the top of the stick let there be fixed a leathern pipe ten inches long; which pipe is to be distended by two yards of spiral wire, coiled up within it. At the upper part of the pipe is fixed a taper wooden fasset, into which the nose of a common household bellows is to be put, in order to ventilate the corn.

If corn, when first put into sacks, be thus aired, every other or third day, for ten or fifteen minutes, its damp sweats which would hurt it, will, in a few weeks, be carried off to such a degree, that it will afterwards keep sweet with very little airing, as has been found by experience.

By the same means other kinds of seeds, as well as corn, may be kept sweet either in sacks or small bins.

30. *To preserve Oats from being musty.*

Richard Fermor, Esq. of Tusmore, in Oxfordshire, has in his stable a contrivance to let oats down from a loft out of a vessel, like the hopper of a mill, whence they fall into a square pipe, let into a wall, about four inches diagonal, which comes into a cupboard set into a wall, but with its end so near the bottom that there shall never be above a desirable quantity in the cupboard at a time, which being taken away, another parcel succeeds; by this motion the oats are kept constantly sweet (the taking away one gallon moving the whole above), which, when laid up otherwise in great quantities, frequently grow musty.

31. *Easy Method of destroying Mites, or Weevils in Granaries.*

A very sagacious farmer has succeeded in destroying weevils by a very easy process. In the month of June, when his granaries were all empty, he collected great quantities of the largest sized ants, and scattered them about the places infested with the weevils. The ants immediately fell upon and devoured every one of them; nor have any weevils since that time been seen on his premises.

Remark.—The large, or wood-ant, feeds entirely on animal substances; of course it would not destroy the corn.

32. *To preserve Carrots, Parsnips, and Beets, all the Winter.*

A little before the frost sets it, draw your beets or parsnips out of the ground, and lay them in the house, burying their roots in sand to the neck of the plant, and ranging them one by another in a shelving position; then another bed of sand, and another of beets, and continue this order to the last. By pursuing this method, they will keep very fresh. When they are wanted for use, draw them as they stand, not out of the middle or sides.

33. *To preserve Turnips from Frost.*

The best way is to stack them up in straw in the following manner:—One load of any sort of dry straw is sufficient for an acre of fifty tons weight. Pull up the turnips, top and tail them, then throw them in a sort of windrow, and let them lie a few days to dry.

First, lay a layer of straw next the ground, and upon it a layer of turnips about half a yard thick; then another layer of straw; so go on alternately with a layer of straw and a layer of turnips; every layer grows narrower, till it comes to a point at the top, like a sugar-loaf. The last layer must be straw, which serves to keep all dry. You must observe always when you have laid a layer of turnips, to stroke or lap over the ends of the under layer of straw, in order to keep them close or from tumbling out. The heap should be as large as a hay-cock; the tops may be given to sheep or cattle as they are cut off.

34. *Another.*

Turnips placed in layers, though not thick, have been found, after a few weeks, to rot. In some places the following method is adopted. Lay the turnips close together in a single layer, on a grass field, near the farm-yard, and scatter some straw and branches of trees over them; this will preserve them from sudden alternations of frost and thaw. They keep as well as stored turnips can do. The bare grass is of no value in winter, and may rather perhaps receive some benefit from the shelter of the turnip. An immense quantity may thus be stored on a small extent of grass ground. It is chiefly useful for small farmers, in soils unfit for the turnip, but who are forced to raise it for milk-cows, or to support, in the winter, the sheep they feed in the summer on the commons, and which they keep, perhaps, principally in the night, on the fields they have no other means of manuring. But it may be useful, even on proper turnip soils, to save the latter part of the crop from the sudden frosts and sunshine in the spring, or in an open winter, which rot so great a portion of it; perhaps a fourth or third part of what is then on the ground.

35. *The good Effects of Elder in preserving Plants from Insects and Flies.*

1. For preventing cabbage and cauliflower plants from being devoured and damaged by caterpillars.

2. For preventing blights, and their effects on fruit-trees.

3. For preserving corn from yellow flies and other insects.

4. For securing turnips from the ravages of flies.

The dwarf elder appears to exhale a much more fœtid smell than the common elder, and therefore should be preferred.

36. *The Use of Sulphur in destroying Insects on Plants, and its Benefit for Vegetation.*

Tie up some flower of sulphur in a piece of muslin or fine linen, and with this the leaves of young shoots of plants should be dusted, or it may be thrown on them by means of a common swansdown puff, or even by a dredging-box.

Fresh assurances have repeatedly been received of the powerful influence of sulphur against the whole tribe of insects and worms which infest and prey on vegetables. Sulphur has also been found to promote the health of plants, on which it was sprinkled; and that peach-trees, in particular, were remarkably improved by it, and seemed to absorb it. It has likewise been observed, that the verdure, and other healthful appearances, were perceptibly increased; for the quantity of new shoots and leaves formed subsequently to the operation, and having no sulphur on their surfaces, served as a kind of comparative index, and pointed out distinctly the accumulation of health.

37. *Method of stopping the Ravages of the Caterpillars from Shrubs, Plants, and Vegetables.*

Take a chafing-dish, with lighted charcoal, and place it under the branches of the tree, or bush, whereon are the caterpillars; then throw a little brimstone on the coals. The vapour of the sulphur, which is mortal to these insects, and the suffocating fixed air arising from the charcoal, will not only destroy all that are on the tree, but will effectually prevent the shrubs from being, that season, infested with them. A pound of sulphur will clear as many trees as grow on several acres.

Another method of driving these insects off fruit-trees is to boil together a quantity of rue, wormwood, and common tobacco (of each equal parts), in common water. The liquor should be very strong. Sprinkle this on the leaves and young branches every morning and evening during the time the fruit is ripening.

In the Economical Journal of France, the following method of guarding cabbages from the depredations of caterpillars is stated to be infallible, and may, perhaps, be equally serviceable against those which infest other vegetables. Sow with hemp all the borders of the ground wherein the cabbage is planted; and, although the neighbourhood be infested with caterpillars, the space inclosed by the hemp will be perfectly free, and not one of these vermin will approach it.

38. *To prevent the Increase of Pismires in Grass-Lands newly laid down.*

Make a strong decoction of walnut-tree leaves, and after opening several of the pismires' sandy habitations, pour upon them a quantity of the liquor, just sufficient to fill the hollow of each heap: after the middle of it has been scooped, throw in the contents from the sides, and press down the whole mass with the foot, till it becomes level with the rest of the field. This, if not found effectual at first, must be repeated a second or a third time, when they infallibly will be destroyed.

39. *To prevent the Fly in Turnips.*

From experiments lately made, it has been ascertained that lime sown by hand, or distributed by a machine, is an infallible protection to turnips against the ravages of this destructive insect. It should be applied as soon as the turnips come up, and in the same daily rotation in which they were sown. The lime should be slacked immediately before it is used, if the air be not sufficiently moist to render that operation unnecessary.

40. *For preventing Flies from destroying the Seedling Leaves of Turnips, &c.*

Mix six ounces of flower of brimstone with three pounds of turnip seed, daily, for three days successively, in an earthen-glazed pot, and keep it close covered, stirring altogether well at each addition, that the seed may be the more tainted with the sulphur; this will sow an acre of ground, and let the weather come wet or dry, it will keep the fly off till the third or fourth seedling leaf is formed; and by this time they will all be somewhat bitterish, and consequently very much out of danger of this little black flying insect, which, in summer time, may be seen in swarms, on the wing, near the ground, searching for and settling on fresh bites, till they ruin thousands of acres.

41. *To prevent Mice from destroying early sown Peas.*

The tops of furze, or whins, chopped and thrown into the drills, and thus covered up (by goading them in their attempt to scratch), is an effectual preventive. Sea sand, strewed pretty thick upon the surface, has the same effect .It gets into their ears, and is troublesome.

42. *Another.*

In the gardens in Devonshire, a simple trap is used to destroy mice. A common brick, or flat stone, is set on one end, inclined at an angle of about forty-five degrees. Two strings, tied to a cracked stick, stuck in the ground, with loops at the ends of the strings, are brought round to the middle of the under part of the brick, and one loop being put into the other, a pea or bean, or any other bait, makes the string fast, so as to support the brick. When the animal removes the bait, the loops separate, and the brick, by falling, smothers the animal.

43. *To destroy Ants.*

Ants that frequent houses or gardens may be destroyed by taking flower of brimstone half a pound, and potash four ounces: set them in an iron or earthen pan over the fire till dissolved and united; afterwards beat them to a powder, and infuse a little of this powder in water; and wherever you sprinkle it the ants will die, or fly the place.

44. *Another Method.*

Corrosive sublimate, mixed well with sugar, has proved a mortal poison to them, and is the most effectual way of destroying these insects.

45. *To destroy Beetles.*

Take some small lumps of unslaked lime, and put into the chinks or holes from which they issue, it will effectually destroy them; or it may be scattered on the ground, if they are more numerous than in their holes.

46. *Another Method.*

The simplest and most effectual way of destroying beetles is by means of red wafers. As it has become usual to substitute vermilion for red lead in the composition of wafers, it will be necessary to ask particularly for such as have been made with red lead. Strew these in the neighbourhood of the crevices from which these insects issue, and their future incursions will be speedily prevented. Cock roaches may be destroyed by the same means.

47. *For destroying Bugs and Worms in Wood.*

An eminent physician has discovered that by rubbing wood with a solution of vitriol, insects and bugs are prevented from harbouring therein. When the strength of this remedy is required to be increased, there need only be boiled some coloquintida apples in water, in which, afterwards, vitriol is dissolved, and the bedstead, with the wood about them, and the wainscotting, being anointed with the liquor, will be ever after clear of worms or bugs. The wall may be likewise rubbed with the composition, and some of it may be dropped into the holes where these insects are suspected to be harboured. As to the walls, they require only to be washed over with the vitriol water.

48. *To destroy Crickets.*

Mix some roasted apples with a little white arsenic powdered, and put a little of this mixture into the holes or cracks in which the crickets are; they will eat it and perish.

49. *To destroy the Insect which attacks the Apple Tree, commonly called the White Blight, or American Blight.*

To a strong decoction of the digitalis or foxglove, add a sufficient quantity of fresh cow-dung to give it such a consistence as may enable you to apply it with a painters' brush to those parts of the bark of the tree, which afford a harbour for this destructive insect. The insect is generally destroyed by the first application, though in some instances it may be necessary to repeat it. It has been remarked that the insect never returns in future years to those parts of the tree which have been thus treated.

50. *For destroying Caterpillars on Gooseberry Bushes.*

Take one Scots pint (two English quarts) of tobacco liquor (which may be made, where it cannot be purchased, by infusing any kind of tobacco in water till all the strength be extracted) which the manufacturers of tobacco generally sell for destroying bugs, and mix them with about one ounce of alum; and when the alum is sufficiently dissolved, put this mixture into a plate, or other vessel, wide and long enough to admit of a brush, like a weaver's brush, being dipped into it; and as early in the season as you can perceive the leaves of the bushes to be in the least eaten or the eggs upon the leaves (which generally happens about the end of May), and which will be found in great numbers on the veins of the leaves on their under side; you are then to take the preparation, or liquor, and after dipping the brush into it, and holding the brush towards the under side of the bush, which is to be raised and supported by the hands of another person; and by drawing your hand gently over the hairs of the brush, the above liquid is sprinkled, and falls in small drops on the leaves; the consequence of which is, if the eggs are there, they never come forward; and if they have already generated worms, in a minute or two after the liquor touches them, they either die or sicken, so as to fall off the bush; at least they do so upon giving it a little shake. If, upon their thus falling off, they shall not appear completely dead, the bush should be held up, and either a little boiling water from a watering-pot thrown over them, or a bruise given them by a spade or shovel; or the earth, where they lie, turned over with a hoe. This preparation does not in the least injure the bushes.

51. *To preserve Flowers, Leaves, and Fruit, from Caterpillars.*

These depredators are destroyed by oils, which close the lateral pores by which they breathe. For this purpose it is advised, that on the approach of spring, a cloth, dipped in train oil, be laid on such parts of the tree in which there is the least appearance of them.

52. *Method to destroy or drive away Earth Worms, and other Insects, hurtful to Fields and Gardens.*

Three parts of quick-lime, newly made, and two parts of soap-boilers' ley, or potash dissolved in water, will produce a somewhat milky liquor sufficiently caustic, and highly hostile and poisonous to earth worms and other small animals; for as soon as it touches any part of their bodies, it occasions in them violent symptoms of great uneasiness. If this liquor be poured into those holes, in which the earth worms reside under ground, they immediately throw themselves out as if driven by some force, and, after various contortions, languish and die. If the leaves of plants or fruit-trees, frequented by the voracious caterpillars, which are so destructive to them, be sprinkled over with this liquor, these insects suddenly contract their bodies and drop to the ground. For, though nature has defended them tolerably well by their hairy skins, from any thing that might injure their delicate bodies; yet, as soon as they touch with their feet or mouths the leaves which have been moistened by this liquor, they become, as it were, stupified, instantly contract themselves, and fall down.

53. *To destroy Earwigs and Wood Lice.*

A very simple way of ensnaring them, and by which they may be taken alive in great quantities, is to place four inch cuts of reeds, bean halm, or strong wheat-straw, among the branches, and also lay a number on the ground, at the bottom of the wall. In these the insects take refuge at day-break, as they depredate chiefly in the night; and any time through the day they may be blown into a bottle with a little water in it, and so be drowned. Or, a cheaper way is to burn the straw, and scatter fresh on the ground.

54. *Remedies against Fleas.*

Fumigation with brimstone; or the fresh leaves of penny-royal sewed in a bag, and laid in the bed, will have the desired effect.

55. *To destroy Fleas on Dogs.*

Rub the animal, when out of the house, with the common Scotch snuff, except the nose and eyes. Rub the powder well into the roots of the hair. Clear lime-water destroys the whitish flea-worm without injuring the skin or hair. Oil of turpentine will likewise do so; but if there be any manginess, or the skin be broken, it will give the animal much pain.

56. *To clear Gardens of Vermin by Ducks.*

Ducks are excellent vermin-pickers, whether of caterpillars (such as are within their reach), slugs, snails, and others, and ought to be turned into the garden one or two days every week throughout the season. Never keep them longer in than two or three hours at a time, else they become indolent. While here, they should have a little water set down to them, if there be no pond or stream in the garden.

Never turn them into the garden in the time of heavy rains, or in continued wet weather, as in that case, and particularly if the soil be stiff, they patter and harden the surface, to the great injury of small crops, and rising seeds.

57. *The Use of Garlic against Moles, Grubs, and Snails.*

Moles are such enemies to the smell of garlic, that, in order to get rid of these troublesome and destructive guests, it is sufficient to introduce a few heads of garlic into their subterraneous walks. It is likewise employed with success against grubs and snails.

58. *To prevent the Destruction of Field Turnips by Slugs.*

A few years since, a considerable farmer, near Bath, observing the turnips in one of his fields strongly attacked by something, discovered, by accident, that the enemy was really a slug, and immediately prevented farther damage by well rolling the whole field, by night, which killed all the slugs.

N. B. This was the grand secret which was advertised for two thousand subscribers, at one guinea each, by W. Vagg, *for destroying the fly* in turnips, which it will *not* do!

59. *Method of destroying Insects on Fruit Trees.*

Make a strong decoction of tobacco, and the tender shoots of elder, by pouring boiling water on them; then sprinkle your trees with the same (cold) twice a week, for two or three weeks, with a small hearth-brush, which will effectually destroy the insects, and the leaves will retain their verdure until the fall of the year.

If used early, as soon as the bud unfolds itself, it will probably prevent the fly. The effect of tobacco has been long known, and elder water frequently sprinkled on honey-suckles and roses has been found to prevent insects from lodging on them.

The quantity to be made use of is one ounce of tobacco to one gallon of water, with about two handfuls of elder. You may, however, make it as strong as you please, it being perfectly innocent to the plants.

60. *To destroy Insects prejudicial to Apple Trees.*

To one hundred gallons of human urine, and one bushel of lime, add cow-dung to bring it to the consistence of paint. With this composition anoint the trees. The month of March is the proper season for applying it. If the white efflorescence-like substance, in which the insects are lodged, has made its appearance, it should previously be brushed off.

61. *To destroy Insects on Fruit Trees.*

Wasps, about the month of July, will begin to swarm about the early fruits, and for their destruction, phials should be hung about the branches half filled with honey and water, or with sugar and small beer. These should be emptied and replaced once in two or three days, otherwise they do not take so well: these little animals being extremely sagacious, and disliking the appearance of their own species when dead.

62. *Another.*

Winter is the proper season to apply the following solution. The juices are then determined to the root.

Soft soap, two pounds; leaf or roll tobacco, one pound; nux vomica, two ounces; and turpentine, half an English gill: boil them in eight English gallons of soft or river water, to six; and use it milk-warm.

Unnail or untie all the branches from the wall or trellis; brush every part of the tree clean with a soft brush, such as is used for painting; then, with a sponge, carefully anoint every branch, root, and bud; and be sure rub it well into every joint, hole, and angle, as it is there the eggs or larvæ of the insects are chiefly lodged. The rails, spars, &c. of the espalier or trellis, should also be anointed as above.

This operation should be repeated every winter, some time between the fall of the leaf and the first of February, as may be most convenient. The solution is effectually destructive to all kinds of insects, their eggs or larvæ.

63. *To kill Reptiles.*

Twelve ounces of quick-lime in powder, two ounces of Scotch snuff, two ounces of basket salt, two ounces of sulphur vivum, dissolved in ten gallons of water, and thrown on the insects, either in the liquid or powder, will destroy them.

64. *To prevent Slugs from getting into Fruit Trees.*

If the trees are standards, tie a coarse horse-hair rope about them, two or three feet from the ground.

If they are against the wall, nail a narrow slip of coarse horse-hair cloth against the wall, about half a foot from the ground, and they will never get over it, for if they attempt it, it will kill them, as their bellies are soft, and the horse-hair will wound them.

65. *To destroy Snails.*

Snails are great enemies to wall-fruit; and any dewy morning you may easily find where they most delight to breed; but the best way is to find out their haunts in a hard winter, and then destroy them; they lie much in holes of walls, under thorns, behind old trees or old and close hedges.—If you pluck not the fruit they have begun to devour, but let it alone, they will finish their repast on this before they begin another.

66. *To destroy the Red Spider, so troublesome in dry Seasons.*

The red spider makes its appearance in hot dry weather, and is always found on the under sides of the leaves, generally on roughish leaves, but not always so. It preys on the apple, cherry, fig, peach, pear, and plum, seldom on the apricot. It is among the smallest of the acari; and is sometimes not distinguishable without a microscope. If the bark of the leaf be viewed through one, it appears full of its webs; and if many abound on it the leaf appears full of punctures, becomes discoloured, and brown on the upper surface, fades, and falls off.

This insect is more troublesome in dry seasons than in moist ones, and is wonderfully encouraged by heat, insomuch that hot-houses of every description are sadly infested with it. Water, and water only, is its bane; and the syringe, or the force-pump, the engine of its destruction. It is not a mere sprinkling that will do; it requires a forcible dashing to and fro, and that often repeated, to be effectual.

67. *To destroy Vermin in Granaries, and other Out-buildings.*

Cover completely the walls and rafters, above and below, of the granaries, &c. which are infested with weevils and other vermin, with quick-lime slaked in water, in which trefoil, wormwood, and hyssop, have been boiled. This composition ought to be applied as hot as possible.

68. *To destroy Vermin on Animals.*

Oil of turpentine, when applied to animals, which were covered with insects, destroyed the insects, without hurting the animal.

69. *To destroy Insects on Wall Fruit Trees.*

Take an old tin watering-pan, or any similar vessel, and make a charcoal fire in it; add a tube or pipe, made of either tin, leather, or stiff paper, to the spout, which may be of any sufficient length; then strew some brimstone, tobacco-dust, fine shreds of leather, &c. upon the fire, in the pan, and cover the top; having a pair of bellows ready, hold the wind-flap over the tube or pipe to receive the smoke, which it will do very effectually when you use the bellows. By this means the suffocating vapour may be directed through the bellows to any part of the tree with the greatest ease and facility, and the tree soon cleared of all vermin. This method is much more effectual than the old one, where a chafing-dish has been recommended for this purpose, because the latter method is more troublesome, and requires the wind to blow from a particular quarter right against the trees, which can seldom be obtained.

70. *To destroy Wasps and Flies instantly.*

Wasps and flies may be killed very fast, by dipping a feather in a little sweet oil, and touching their backs with it: they will instantly die. When intent on the fruit, and half-buried in the excavations they have made, they are easily come at, and are not apt to fly about. Insects of different kinds are easily killed by oil; it closes up the lateral pores by which they breathe.

71. *Method of destroying Wasps and Hornets.*

Those that are not unacquainted with natural history know that all the working wasps die every autumn, when the cold weather comes on, and that only a few females survive the winter, and keep up the breed. These (which are turgid with eggs, and much larger than the workers) come forth about April from their lurking holes, and begin singly each its nest, which in a moderate time becomes very populous. It is therefore of great consequence to kill as many of these as possible, since a whole swarm is destroyed in every single female early in the year. The places to find them are at new posts, pales, melon-frames, or any solid timber: for, as they make their combs with the shavings of the sound wood, which they rasp off with their fangs, and moisten up with a certain mucus that nature has provided in their bodies, they will readily be found near such materials.

Hornets must be searched for on decayed posts, rails, &c. for they make their combs with touchwood, and the same kind of natural cement.

In the very hot summer of 1762, wasps were so numerous and alert, that it looked as if no fruit could have hung till it was fit for the table. They began on the grapes before they were half ripe; and, getting into the melon-frames, scooped out all the pulp of the fruit, leaving only empty shells. I tried phials, as usual, filled with sugared beer, &c. this destroyed some, but did not seem to lessen their swarms; at last I bethought myself to buy some bird-lime, with which I tipped several taper hazel-rods of different lengths, and so began catching them by hand, applying the top of the rod as they settled on the fruit. This appeared at first to be a tedious method; but after a little practice, it soon had the desired effect, for a handy person or two would in a few hours entangle four or five hundred; and it soon appeared they were not so numerous as we imagined; and the taking the workers starved the grubs, which are supported by them, and prevented a succession. By this simple method (ineffectual as it may appear), I saved my fruit entire, which hung till it was ripened to great perfection.

Hornets, as they are larger and more sluggish, are easily taken: this method of touching them is a sort of angling, and not a bad amusement for half an hour. As fast as they are caught they must be squeezed to death with a flat piece of lath, the tip of the rod refreshed with bird-lime now and then. The reason of providing rods of different lengths is to suit the different heights of the wall.

While I am speaking of fruit, it may not be amiss to add, that this summer I recovered a peach-tree that was quite shrivelled up on one side by a partial watering, two or three times a week, of the affected part.

72. *To destroy Worms in Gardens.*

Water your beds with a strong decoction of walnut-tree leaves where there are worm casts; the worms will immediately rise up out of the earth, and you may easily take and cut them to pieces, and fatten your poultry therewith, or feed fish in ponds with them.

By laying ashes or lime about any plant, neither snails nor worms will come near it. As the moisture weakens it, you must, more or less, continue to renew the lime or ashes.

73. *To destroy Worms in Gravel Walks, &c.*

Pour into the holes a ley, made of wood-ashes and lime: this will also destroy insects, if trees are sprinkled with it. Salt and water will do as well.

74. *Usefulness of the Wren in destroying Insects.*

As a devourer of pernicious insects, one of the most useful birds is the house wren. This little bird seems peculiarly fond of the society of man, and it must be confessed that it is often protected by his interested care. It has long been a custom, in many parts of the country, to fix a small box at the end of a long pole, in gardens, about houses, &c. as a place for it to build in. In these boxes they build and hatch their young. When the young are hatched, the parent birds feed them with a variety of different insects, particularly such as are injurious in gardens. An intelligent gentleman was at the trouble to observe the number of times a pair of these birds came from their box, and returned with insects for their young. He found that they did this from 40 to 60 times in an hour, and in one particular hour, the birds carried food to their young 71 times. In this business they were engaged the greater part of the day; say 12 hours. Taking the medium therefore of 50 times in an hour, it appeared that a single pair of these birds took from the cabbage, salad, beans, peas, and other vegetables in the garden, at least 600 insects in the course of one day. This calculation proceeds upon the supposition that the 2 birds took only a single insect each time. But it is highly probable they often took several at a time.

75. *To destroy Rats and other Vermin.*

Sponge, if cut in small pieces, fried or dipped in honey, and given to vermin, distends their intestines, and effectually destroys them. The addition of a little oil of rhodium will tempt them to eat.

A better method would be to feed them regularly two or three weeks in any apartment which they infest. The hole, by which they enter, being first fitted with a sliding door, to which a long string may be added; any apartment might thus be turned into a gigantic rat-trap.

76. *Another Method of destroying Rats.*

Lay bird-lime in their haunts, for though they are nasty enough in other respects, yet being very curious of their fur, if it is but daubed with this stuff, it is so troublesome to them that they will even scratch their skins from off their own backs to get it off, and will never abide in the place where they have suffered in this manner.

77. *To destroy Rats or Mice.*

Mix flour of malt with some butter; add thereto a drop or two of oil of aniseeds; make it up into balls, and bait your traps therewith. *If you have thousands*, by this means you may take them all.

78. *A Mouse Trap, by which forty or fifty Mice may be caught in a Night.*

Take a plain four-square trencher, and put into the two contrary ends of it a large pin, or piece of thick knitting needle; then take two sticks about a yard long, and lay them on your dresser, with a notch cut at each end of your sticks, placing the two pins, stuck on the corner of the trencher, on the notches of the two sticks, so that one corner of your trencher may lie about an inch upon your dresser or place that the mice come to; then let the corner that lies opposite to this be baited with some butter and oatmeal, plastered fast on, and when the mice run off the dresser to the butter, it will tip them into a vessel full of water, which you must place under the trencher, in which they will be drowned.

That your trencher may not tip over, with a little sealing-wax and a thread seal the string to the dresser and trencher, and it will remain in good order for weeks or months.

97. *New, simple, and effectual Method of destroying Rats.*

A few years ago, the corn-mill at Glossop was very much infested with rats. A quantity of barley, which lay on the chamber floor, was hourly visited by some of them. The miller one day going to drive them away, as usual, happened to catch one of them under his hat, which he killed; he then singed all the hair off its body, &c. until its skin, tail, and legs, became stiff by the operation. In this condition he set it upon its feet by the side of a heap of barley, where it stood, with pricked-up ears and tail, for some time: after this, no rat dared to come near it; and in a short space of time the mill was cleared of those depredators, and has continued so ever since.

80. *Dr. Taylor's cheap and efficacious Method of destroying Rats.*

[Communicated to the Manchester Agricultural Society.]

In or near the place frequented by these vermin, place on a slate or tile one or two table-spoonfuls of dry oatmeal. Lay it thin, and press it flat, more easily to ascertain what is taken away. As the rats, if not interrupted, will come regularly there to feed, continue to supply them with fresh oatmeal for two or three days; and then, well mixing, in about six table-spoonfuls of dry oatmeal, three drops only of oil of aniseeds, feed them with this for two or three days more. Afterward, for one day, give them only half the quantity of this scented oatmeal which they have before actually eaten; and next day, place the following mixture: To four ounces of dry oatmeal, scented with six drops of oil of aniseeds, add half an ounce of carbonated barytes, previously pounded very fine in a mortar, and sifted through a little fine muslin or cambric. Mix this intimately with the scented oatmeal; and, laying it on the tile or slate, allow the rats to eat it, without the smallest interruption, for twenty-four hours. A few hours after eating any of it, they will frequently be seen running about, as if drunk, or paralytic; but they generally, at last, retire to their haunts, and die. As rats are extremely sagacious, it may be proper, when they have, during the twenty-four hours, eaten only a small portion, to leave the remainder of the mixture twenty-four hours longer; after which it will be best to burn what is left, a fresh mixture being prepared at so trifling an expense when wanted. The doors of the place where this mixture is exposed to the rats should be kept closed; as well to prevent their being disturbed, as to obviate the possibility of accidents to children or domestic animals; for, though it be not so extremely dangerous as the preparations commonly employed for killing rats, and is even used in medicine, it proves fatal, if improperly taken, unless timely counteracted by emetics. The oil of aniseeds, though it renders the mixture disagreeable to dogs, and many other animals, is alluring, when used in small quantities, to rats. The carbonated barytes, Dr. Taylor adds, may be procured in large quantities at the lead mines belonging to Sir Frank Standish, Bart. at Anglezark, near Chorley, in

Lancashire: the proper sort is tasteless, semi-transparent, and effervesces with acids; it is moderately hard, and striated. It is called aerated barytes—terra ponderosa aerata—and, sometimes, by the miners, ponderous spar. It may be purchased at a cheap rate, from Messrs. Brown and Mawe, in Tavistock-street, or other collectors of minerals.

81. *To prevent the Burrowing of Rats in Houses.*

Rats may be effectually prevented from burrowing under the foundation of houses, by making an offset of stone or brick, about two feet in breadth, and eighteen inches below the surface; and by carrying up a perpendicular wall from the edge of this offset, to within a few inches of the ground. The adoption of the same plan *inside* will prevent the burrowing of these animals in cellars: for rats always burrow close to a wall; and finding their perpendicular course impeded, they take a horizontal direction, as far as the offset continues, when they are again stopped by the outside wall. Thus baffled, they ascend, and go off.

Those persons who have suffered in their granaries, ice-houses, and in the cellars of their dwelling-houses, by the depredations of rats, will probably deem this one of the most valuable articles of the present work.

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82. *Scotch Kale, excellent Food for Cattle.*

Scotch kale planted out in June, in good land, will grow very large before winter, and would give an abundant supply for cattle, where no other juicy food is to be had. As it grows upwards, it may be planted close, and a vast deal will stand upon an acre.

83. *Usefulness of mowing Weeds.*

In the month of June weeds are in their most succulent state, and in this state, especially after they have lain a few hours to wither, hungry cattle will eat greedily almost every species. There is scarcely a hedge, border, or nook, but at this season is valuable, and it must certainly be good management to embrace the transient opportunity; for in a few weeks they will become nuisances.

84. *On the great Increase of Milk from feeding Milch Cows with Sainfoin.*

The quantity of milk produced by cows fed by sainfoin is nearly double to that of any other food. The milk is also much richer, and will yield a larger quantity of cream. The butter will also be better coloured and flavoured than any other.

85. *Parsnips productive of Milk in Cows.*

Parsnips cause cows to produce abundance of milk, and they eat them as free as they do oil-cake. Land, 7*l.* an acre in Guernsey, is sown with parsnips to feed cattle, and the milk is like cream.—Sheep, when lambing, fed with them, produce much milk. They are improper food for horses, subjecting them to blindness.

86. *Most proper Food for Milch Cows.*

Milch cows are infinitely more profitable kept in the house than out of doors, but they must be trained to it, otherwise they do not thrive.

The best food for them are clover, lucerne, potatoes, yams, turnips, carrots, cabbages, peas, and beans.

Such cows as those in the neighbourhood of London, kept in the house, and properly fed, ought to yield nine gallons per day, for the first four months after calving.

87. *Additional Quantity of Milk to be gained by keeping Milch Cows in the House.*

In the management of cows a warm stable is highly necessary; and currying them like horses not only affords them pleasure, but makes them give their milk more freely. They ought always to be kept clean, laid dry, and have plenty of good sweet water to drink. Cows treated in this manner have given two gallons of milk at a time, when within ten days of calving.

88. *Excellent Method of rearing Calves, and of preserving the Cream, and a great Part of the Milk during that Time.*

Put some water on the fire, nearly the quantity that the calf can drink. When it boils, throw into it one or two handfuls of oatmeal, and suffer the whole to boil for a minute. Then leave it to cool until new milk warm. Then mix with it one or two quarts of milk, that has stood twelve hours, and has been skimmed: stir the whole, and give it the calf to drink. At first it is necessary to make the calf drink by presenting the fingers to it, but it soon learns to do without this help, and will grow incomparably faster than by the old method. This new method is not only a theoretical truth, but its success is confirmed by experience.

The economical advantages resulting from it are as follows.—According to the old method, a calf intended for slaughter is made to suck for three weeks, and those intended for agriculture from six to eight weeks. Supposing the cow gives only a moderate quantity of milk, the value of it will amount, in three weeks, to nearly the value of the calf. If, on the contrary, we rear a calf according to this method, we consume during the three weeks only three quarts of oatmeal, at most, and the skimmed milk.

Calves that have been brought up by this method have been always healthy and strong, and not subject to disease. They are not suffered to suck at all, but to have the pure milk of the mother to drink for the first four days, because it has been observed, that the separation, after four days, is more painful to the mother than when the calf is taken from her soon after its birth.

89. *New Mode of Fattening Pigs.*

A pig lately gained, by feeding on Indian corn, in the course of six weeks and three days, the enormous weight of fifteen stone. This mode of feeding has long been known to the Neapolitans, whose pigs are so fat as hardly to be able to move.

90. *Utility of Carrots as Food for Horses and other stall Beasts.*

Carrots are excellent food for horses, either given alone, or along with hay, likewise for fattening stall beasts. They make them eat straw, and very indifferent hay, greedily. If the same be given to cows, the milk will have a much less offensive taste and smell than when they are fed on turnips.

Remark.—It must be noted, however, that carrots, though very excellent, are a very expensive food. They would not enable a farmer to pay his rent.

91. *Benefit of Furze or Gorze as a Winter Food for Horses.*

Having a horse which had been overworked to the appearance of a surfeit, I treated him in the usual manner for that disorder; and knowing how necessary it would be to his speedy recovery to give him green food after his physic, it occurred to me that furze might answer the purpose immediately, as there could be none of the common herbage procured before the end of April at soonest. I therefore had a quantity of the tops, and the tenderest parts of that plant, cut daily, to preserve it fresh, which I hashed upon a block, with a very long and heavy chopping-knife, as small as possible, and then beat it again over the same block with a carpenter's mallet (which blunted in a great measure the sharp prickles), and gave half a peck a day of it to the horse (in the stable), which ate it most greedily, and received so much benefit from it that he is totally recovered, and carries a very fine coat.

The success of this experiment led me to consider the great utility this plant may be of to poor people who live in the neighbourhood of large commons overgrown with it, as food for cows in winter, when fodder is dear; and, in reality, none so proper for milch cattle as this green food, which must naturally increase the milk, and from the fragrant smell it sends forth while cutting, it may reasonably be conjectured it will give no ill taste to it, as many vegetables do.

Remark.—In any situation, however, where furze could be extensively used as food for cattle, chopping and beating would be found to be too expensive a process, though it has often been tried on a small scale, and the food is known to be excellent. Every leaf of the common furze of this country is pointed by a prickle; and the only cheap way of making the plant useful is to bruise it to a pulp, between rollers in a mill. Such rollers, added to a thrashing-machine, might, in some situations, be very useful.

92. *To mark Sheep without Injury to the Wool.*

To thirty spoonfuls of linseed oil add two ounces of litharge, and one ounce of lamp-black; unite them together by boiling, and mark the sheep therewith.

93. *To improve the Wool of Sheep by Smearing.*

Immediately after the sheep are shorn, soak the roots of the wool that remain all over with oil or butter and brimstone, and three or four days afterwards wash them with salt and water: the wool of next season will not only be much finer, but the quantity will be in greater abundance. It may be depended upon, that the sheep will not be troubled with the scab or vermin that year. Salt water is a safe and effectual remedy against maggots.

94. *To preserve Cattle from Disease in the Winter.*

When cattle are kept out in the winter, it is recommended as an useful practice to rub some tar at the root of the horn, which prevents the wet from getting between the root and the skin, and, it is said, contributes to preserve the health of the animal, and to keep it free from various diseases to which it may otherwise be liable.

95. *Easy Method of preventing the Rot in Sheep.*

It is a custom with the farmers, in some districts, to pasture their sheep on ground abounding with broom for several days, when the broom is in blossom. "This," says Sir John Sinclair, on the authority of an intelligent correspondent, "will prevent the sheep so pastured from being infected with the rot for that season."

96. *Parsley recommended to Farmers to be sown with Rape-Seed, as a Preservative against the* Resp *in Sheep.*

A correspondent of the Chester Chronicle recommends to all farmers, who sow rape-seed, to sow with it a small portion of parsley at the same time; this he pronounces an infallible preservative against the malady well known by the name of *resp*, in sheep; he also advises to sow parsley on turnip land at the time of hoeing turnips. The above correspondent asserts, that he has pursued this plan upwards of 25 years, and during that time he has never lost one sheep, either in rape or turnip land.

Remark.—In some counties, parsley is sown with clover, on the supposition that it prevents cattle from being bursten, or hoven.

97. *Cure of the Rot in Sheep.*

Take a quantity of rue leaves, bruise them well, express the juice, and add an equal weight of salt: when any of the sheep are in great danger of being rotten, give them a table-spoonful of this once a week; and if they are not so bad, once in ten or twelve days. This will be found an excellent preservative, and, in fact, should always be given to sheep newly brought in, as it may preserve them in health, and can do them no harm, let them be ever so well.

98. *Mr. Bakewell's Liquid for the Cure of the Foot-rot in Sheep.*

Dissolve four ounces, each, of vitriol and common alum, three ounces of verdegris, an ounce and a half of white mercury, and an ounce of white copperas, all finely pulverized in a quart of white wine vinegar.

99. *Mr. Culley's Red Salve to cure the Rot in Sheep.*

Mix four ounces of the best honey, two ounces of burnt alum, reduced to powder, and half a pound of Armenian bole, with as much train or fish oil as will convert these ingredients into the consistence of a salve. The honey must first be gradually dissolved, when the Armenian bole must be stirred in, afterwards the alum and train oil are to be added.

100. *Rules for Milking Cows.*

Cows should be milked three times a day, if fully fed throughout the summer, and great caution should be exercised by the persons employed, to draw the milk from them completely, not only to increase the quantity of produce, but to preserve its quality. Any portion which may be left in the udder seems gradually absorbed in the system, and no more is formed than enough to supply the loss of what is taken away, and by the continuance of the same mode, a yet farther diminution of the secretion takes place, till at length scarcely any is produced. This last method of milking is always practised when it is intended that a cow should be rendered dry.

101. *Proper Temperature for a Dairy.*

The apartments appropriated for dairy purposes should, if possible, possess a moderate temperature throughout the year, and should be kept perfectly clean and dry. The temperature of about fifty-five degrees is most favourable for the separation of the cream from the milk. The utensils of the dairy are best made of wood; lead and copper are soluble in acid, and highly pernicious; and though iron is not injurious, the taste of it might render the produce of the dairy unpalatable.

102. *Method of making excellent Butter from the Milk of Cows fed upon Turnips.*

Let the bowls, either lead or wood, be kept constantly clean, and well scalded with boiling water, before using. When the milk is brought into the dairy, to every eight quarts mix one quart of boiling water; then put up the milk into the bowls to stand for cream. By keeping strictly to this method, you will have, during the winter, constantly sweet and well-tasted butter from the milk of cows fed upon turnips.

103. *Improved Method of making Butter.*

If the dairy consists of three or four cows, they should be milked in the summer thrice a day; in the morning, at noon, and in the evening. Each milking must be kept by itself, in flat wooden vessels, to cool in like manner; and thus in succession for two or three days, according to the temperature of the air, the milk thickening, and thence is fit for churning, soonest in the warmest weather. The quantity of butter will be generally in the proportion of a pound (twenty-two ounces) for each ten pints, or five English gallons of milk. In winter the cows are to be milked only twice a day, and the milk is to be put into the churn warm from the cow, where it must stand a day or two longer than in summer before it becomes sufficiently thick; although to promote the coagulation, it is sometimes brought near the kitchen fire, particularly on the preceding night before it is churned; and, in intense cold, it will be necessary to add a small quantity of boiling water. The operation of churning is performed with the plunge churn, from two to three hours, for thirty or forty pints of milk; and at the last stage of the process, a little cold water thrown in has the effect of promoting the separation of the butter from the milk, and making it twice a day; and even before the cloth is taken off, the top and bottom are well rubbed every day.

N. B.—The dairy-maid must not be disheartened if she does not succeed perfectly in her first attempt.

104. *Dr. Anderson's Method of keeping Milk and Butter.*

The pernicious method of keeping milk in leaden vessels, and salting butter in stone jars, begins to gain ground in this country, as well as elsewhere, from an idea of cleanliness. The fact is, it is just the reverse of cleanliness; for, in the hands of a careful person, nothing can be more cleanly than wooden dishes, but under the management of a slattern, they discover the secret, which stone dishes do not.

In return, these latter communicate to the butter, and the milk, which has been kept in them, a poisonous quality, which inevitably proves destructive to the human constitution. To the prevalence of this practice, I have no doubt (says the doctor) we must attribute the frequency of palsies, which begin to prevail so much in this kingdom; for the well-known effect of the poison of lead is, bodily debility, palsy—death.

105. *Proper Situation for a Green-house.*

The aspect of a green-house may be at any point from east to west, following the course of the sun; or it may even be a little to the north of east or west; but only a little, and the less the better, otherwise the plants will not generally thrive in it, nor will the flowers acquire their natural colours. A south aspect is to be preferred.

106. *Easy Method of discovering whether or not Seeds are sufficiently ripe.*

Seeds, when not sufficiently ripe, will swim, but when arrived at full maturity, they will be found uniformly to fall to the bottom; a fact that is said to hold equally true of all seeds, from the cocoa nut to the orchis.

107. *On preserving Seeds of Plants in a State fit for Vegetation.*

Seeds of plants may be preserved, for many months at least, by causing them to be packed, either in husks, pods, &c. in absorbent paper, with raisins or brown moist sugar; or a good way, practised by gardeners, is to wrap the seed in brown paper or cartridge paper, pasted down, and then varnished over.

108. *To facilitate the Growth of Foreign Seeds.*

Mr. Humboldt has found, that seeds, which do not commonly germinate in our climate, or in our hot-houses, and which of course we cannot raise for our gardens, or hope to naturalize in our fields, become capable of germinating, when immersed for some days in a weak oxygenised muriatic acid. This interesting discovery has already turned to advantage in several botanic gardens.

109. *To plant and make Edgings.*

Edgings of daisies, thrift, violets, gentianella, &c. should be planted in February; but those of box succeed better, if planted in April or August.

New edgings should be planted rather closely, that they may have an immediate effect; and, in repairing old ones, plant very close, that the whole may appear the more uniform. Some plant these, in either case, with the dibble, but it is better to do this with the spade; cutting out by the line a drill, or furrow, perpendicular, on the side next the border, and to a depth suitable to the size of the roots to be laid;

placing them against the perpendicular side, and spreading out their fibres sideways; exposing them to the air as short a time as possible.

110. *To train Evergreen and other Hedges.*

Evergreen hedges may be clipt about the beginning, but not later than the middle of April, as by that time they will begin to grow, and it is proper that this work should be previously performed. Some content themselves with clipping but once a year, in which case the end of July, or 1st of August, is a better time.

In trimming these, or indeed any hedge intended as a close fence, they should be dressed up to a thin edge at top, as otherwise they are apt to get full of gaps below; and the cause is obvious, that the under part, in square or cut hedges, is too much shaded by the upper part. Now by sloping the sides, every part of the hedge is freely exposed to the air, nor is any part overdropped by another. A hedge, intended merely as a fence, need seldom be more than five feet high, or at most six. Screen hedges may be allowed to run to any height thought necessary for the purpose, neither is it requisite to trim them so often as fence hedges; once a year, or in two years, may be sufficient.

In the training of any hedge, it should not be topped or shortened, till it has arrived at a full yard in height; but it may then have a little taken off the points, in order to make it bush the better, and shoot afterwards of a more regular height; the sides, however, should be trimmed from the second or third year of planting, that it may grow the more complete and close below, for therein consists the excellence of any fence. It should not, in topping, at any time while in training, be much cut in, as that would make it push the stronger to the top, to the detriment of the sides. When fence hedges outgrow their limits they must of course be cut either wholly or partly down; but if they be tolerably well kept it is seldom necessary to cut them down more than half to the ground.

111. *How to cut Box Edgings.*

Box edgings should be cut about the beginning of April, or in the end of July. They should, however, be cut once a year, and should be kept two inches in breadth at bottom; being tapered up to a thin edge at top; for nothing looks so ill as a large bushy edging, especially to a narrow walk. The use of edging is to separate the earth from the gravel, and the larger they are allowed to grow, the less effectual they become; getting the more open below, as they advance in height. Such also harbour snails, and other troublesome vermin.

112. *A sure Method of curing Gravel Walks.*

Three parts pond-water to one of brine, from the salting-tub in a family, poured with a watering-pot upon gravel walks, will not only kill the moss upon them, but drive away the worms which make so many holes in them, and also prevent weeds springing up. This a gentleman lately tried, who has several gravel walks in a grove near his house. Since he moistened his walks with brine, which is new four years ago, they are incommoded neither by moss, weeds, nor worms. Every autumn he causes them to be well watered with the brine and pond water, during a whole week, to prevent moss, and a week in the spring, to guard against weeds and worms, besides giving them a sprinkling every now and then in summer-season, when they seem to want it.

113. *Proper Method of laying Carnations.*

In summer, towards the latter end of June, or any time in July, or beginning of August, when the shoots of the year are advanced to a proper growth, being from four, five, or six, to seven or eight inches long, which are to be laid as they grow on the plants, and to remain affixed thereto till rooted in the ground.

Thus far observed, begin the work by first clearing away all weeds about the plants, and loosen the earth a little around them, and if the surface is low, add some mould thereto sufficient to raise it high enough to receive the layers easily; then begin the laying the shoots one by one; strip off the lower leaves so as to have some inches of a clear shoot below; and trim the top leaves shorter and even, and then slit or gash the shoot on the under side; in doing which, fix on a joint about the middle of the shoot underneath, and with your sharp knife cut half through the joint, and slanting upwards, so as to slit the shoot up the middle half an inch, or but little more; which done, directly lay it, by bending it down to the earth with the gash or slit part open, making an opening in the earth, and peg it down with one or two of the small-hooked sticks, and earth over the body of the layer an inch or two deep, still keeping the slit open and the top raised gently upright, pressing the earth moderately upon them; and in this manner proceed with laying all the shoots on each plant; and when all are laid give a gentle watering to settle the earth close about the layers, and repeat it frequently in dry weather.

They will soon emit roots at the gash or slit part, generally at the bottom of the tongue, and in five or six weeks will often be rooted fit for separating and planting off from the parent, so that when they have been about five, six, or seven weeks laid, you will examine the progress they have made in rooting, by opening the earth gently about some of the layers; and as soon as they appear to be tolerably rooted let them be cut off from the old plant with a sharp knife, in order to be timely planted out in nursery beds, that they may root more abundantly, and get due strength before winter; observing, in cutting them off from the mother plant, to open the ground so as to take them up with all the roots they have made, and cut them clean off beyond the gash; afterwards trim off any naked woody part or bottom, but preserve all the roots, and trim the long tops a little, then plant them in nursery rows, six inches asunder, or you may prick some in small pots, one layer in each, giving water directly at planting, and repeat it often in dry weather till they take good root, and grow freely, keeping them clean from weeds.

Those in the nursery beds will, by October, be good strong plants. The choicest sorts may then be planted in pots, to move under occasional shelter in time of severe frost, and for which purpose, either use small pots (32) to contain them all winter. or plant them in large pots (24 or 16) to remain to flower, observing to take them up out of the nursery beds for potting, &c. with a garden trowel, each layer with a good ball of earth about the roots; and having the pots ready, placing a shell over the holes at bottom, and put some good light rich earth therein; plant one layer with its ball about the roots entire in each pot, fill up with more earth, and give some water; you may also at the same time plant some of the more ordinary or common sorts into flower-borders or beds, to stand the full weather all the year; but the choicer sorts in the pots may, in November, be placed close together, either in a garden-frame, to have occasional protection of the glasses, or mats, in severe frost, and have the full air in all open weather and mild days, or may be plunged in a raised bed of any dry compost, raised some inches above the common level, and arched over with hoop arches, in order to be protected with occasional covering of garden mats when hard frosts prevail; but in either method be sure to expose them fully in all open weather, as aforesaid.

In the spring, such as have remained all winter in small pots should, in February or early in March, be turned out with the ball of earth about the root, and planted into larger pots, to remain for flowering, giving proper waterings; and those which were potted at once into larger pots in autumn should now have the earth stirred at top, taking out some, and fill up with fresh good earth, and give a little water.

The layers planted in the common borders of the pleasure and flower garden require no other care than keeping them clean from weeds, and tying up the flower stalks to sticks when they are advanced long enough to require support.

114. *Plants watered by being placed in Dishes, improper.*

The practice of placing flats or saucers under plants, and feeding them by the roots, that is, pouring the water continually into those dishes, and never on the earth at top, is highly improper. The water should always be poured on the surface of the earth, that it may filter completely through it, to the benefit and refreshment of the fibres.

115. *When to plant Annual and Perennial Flowers.*

Many kinds of annuals and perennials, sown in March and the beginning of April, will be fit for transplanting about the end of May, and may either be planted in patches about borders, or in beds, as fancy shall direct. Of these, the kinds improved by transplanting are, amaranthuses, China asters, columbines, French and African marigolds, fox-gloves, hollyhocks, India pinks, love lies a bleeding, mallows, mignionette, prince's feather, scabious, stocks, sun-flowers, sweet-williams, wall-flowers, and others. They should be planted out in a showery time, if possible, or otherwise be frequently watered, till they have struck root.

116. *To remove Herbs and Flowers in the Summer.*

If you have occasion to transplant in the summer season, let it be in the evening after the heat is past, plant and water the same immediately, and there will be no danger from the heat next day; but be careful, in digging up the earth, you do not break any of the young shoots, as the sap will exude out of the same to the great danger of the plants.

117. *Method of growing Flowers and Fruits during Winter.*

In order to produce this effect, the trees or shrubs being taken up in the spring, at the time when they are about to bud, with some of their own soil carefully preserved among the roots, must be placed upright in a cellar till Michaelmas; when, with the addition of fresh earth, they are to be put into proper tubs or vessels, and placed in a stove or hot-house, where they must every morning be moistened or refreshed with a solution of half an ounce of sal-ammoniac in a pint of rain water. Thus, in the month of February, fruits or roses will appear; and with respect to flowers in general, if they are sown in pots at or before Michaelmas, and watered in a similar manner, they will blow at Christmas.

118. *To preserve delicate young Shoots of Flowers from Slugs and Earwigs.*

Earwigs and slugs are fond of the points of the young shoots of carnations and pinks, and are very troublesome in places where they abound. To prevent them from getting to the fine stage plants, or supports of the stage, they are sometimes insulated in water, being set in cisterns or pans. If a pencil dipt in oil was drawn round the bottom of the posts once in two days, neither of these insects nor ants would attempt them. Few insects can endure oil. The smallest drop of it is instantly fatal to many kinds.

119. *To preserve Flower Seeds.*

Those who are curious about saving flower seeds must attend to them in the month of August. Many kinds will begin to ripen apace, and should be carefully sticked and supported, to prevent them from being shaken by high winds, and so partly lost. Others should be defended from much wet; such as asters, marigolds, and generally those of the class Syngenesia; as from the construction of their flowers they are apt to rot, and the seeds to mould, in bad seasons. Whenever they are thought ripe, or indeed any others, in wet weather, they should be removed to an airy shed or loft, gradually dried, and rubbed or beat out at conveniency.

120. *To propagate Herbs, by Slips and Cuttings.*

Many kinds of pot-herbs may, in July, be propagated by cuttings or slips, which may be planted out to nurse on a shady border for a few weeks, or till they have struck root, and may then be planted out where they are to remain. If made about the middle, or end of the month, they will be ready for transplanting before the end of August, and in that case will be well established before the winter.

The kinds are marjoram, mint, sage, savory, sorrel, tansy, tarragons, and thyme.

121. *To raise Capsicums, and make Cayenne Pepper.*

Cayenne pepper is a spice used in most families, and often cultivated in the gardens for ornament, without either gentlemen or gardeners knowing that they have so valuable a spice in their possession; for the usual price is a shilling an ounce, and even then it is not much dearer than black, as it will go about four times as far.

This pepper originally came from Cayenne, in South America, (and other warm countries), from whence it took its name, but is now so naturalized to this climate as to be raised on a common hot-bed in spring.

It is produced from the capsicum, which is raised for ornament, with many other annual flowers, or for pickling the green pods, and is the seed and pod when ripe.

In March or April, procure some pods of any of the sorts of capsicums, as there are many varieties of them of different shapes; take out the seeds, and sow them on a hot-bed, not too thick.

When they are about four inches high, prick them out on a hot-bed, at six inches asunder; or put each into a small pot, or three into a large one, and keep them still under the glasses.

In June, when the weather is settled, plant them all in a warm situation, in rich earth, where they are to remain; some on the borders of the flower-garden, and some into larger pots, which you can shelter in bad weather.

122. *New Method of raising Cucumbers.*

From the best seed that can be got of the common prickly cucumber, raise plants on a moderate hot-bed, not hurrying them too much in their growth. In May, when the danger of the frost is nearly over, familiarise the plants, by degrees, to the air, and towards the latter end of the month plant them in the open ground against a south wall. Take care not to give them too much water, as that will injure the fruit. When they have run up about five feet, they will send forth blossoms, and the fruit will begin to show itself soon after. The flesh of cucumbers raised in this manner will be thicker and firmer, and the flavour vastly more delicious, than those raised from the same seed, but planted in the ordinary way, and the runners suffered to trail on the ground. Though a south wall, in most gardens, is too much appropriated to other things, to give room for cucumbers in general, yet in every garden a few plants may be so trained by way of rarity, and to save seed, which is found to be greatly improved by this method, so as to produce much better cucumbers in the common way of raising them. One or two plants, so raised, will supply a sufficient quantity of seed for a large garden.

Laying a cucumber, or melon-bed, with tiles, is also of particular service in improving the fruit, and giving it a proper flavour.

123. *To prevent the irregular Growth of Melons.*

It is well known that melons frequently, in certain situations, lose their circular form, and grow larger on one side than the other, and that those misshapen fruits are always bad. To remedy this, take a small forked stick, in proportion to the size of the melon, and thrust it into the ground as nearly as possible to the tail of the fruit, taking the precaution to lay a little moss between the two prongs, and suspend the melon to this fork. In a few days the melon will resume its form, when the fork may be removed, and the operation is finished. The quality of the fruit remains unchanged.

124. *Easy Method of producing Mushrooms.*

If the water wherein mushrooms have been steeped or washed be poured upon an old bed, or if the broken parts of mushrooms be strewed thereon, there will speedily arise great numbers.

125. *To obtain a good Crop of Onions.*

In order to obtain a good crop of onions, it is proper to sow at different seasons, viz. in light soils, in August, January, or early in February; and in heavy wet soils, in March, or early in April. Onions, however, should not be sown in January, unless the ground be in a dry state, which is not often the case at so early a period of the season; but if so, advantage should be taken of it.

126. *The Advantage of sowing Peas in Circles instead of straight Rows.*

It is a great error in those persons who sow the rows of tall growing peas close together. It is much better in all those sorts, which grow six or eight feet high, to have only one row, and then to leave a bed ten or twelve feet wide for onions, carrots, or any crops which do not grow tall.

The advantages which will be derived are, that the peas will not be drawn up so much, be stronger, will flower much nearer to the ground, and in wet weather can be more easily gathered without wetting you.

But instead of sowing peas in straight rows, if you will form the ground into circles of three feet diameter, with a space of two feet between each circle, in a row thirty feet long, you will have six circles of peas, each nine feet; in all, fifty-four feet of peas instead of thirty, on the same extent of ground.

If you want more than one row of circles, leave a bed of ten or twelve feet before you begin another.

For the very tall sorts, four feet circles will afford more room for the roots to grow in, and care must be taken, by applying some tender twigs, or strings, to prevent the circles from joining each other.

This method is equally applicable for scarlet-beans.

127. *To raise Peas in Autumn, and to prevent Mice from eating them when sown.*

The purple-flowered peas are found to answer best for a late crop in autumn, as they are not so liable to be mildewed as many of the other sorts, and will continue flowering till the frost stops them.

Those peas may be sown in July, August, or so late as the first week in September, if sown in a warm sheltered situation, and in a soil inclining to sand.

Soak the peas in warm milk, and after you have drawn the drills, water them before you sow the peas; it is best to sow them towards the evening. If the autumn should prove very dry, they will require frequent watering.

When peas are sown before winter, or early in spring, they are very apt to be eaten by mice.

To prevent this, soak the peas for a day or two in train oil before you sow them, which will encourage their vegetation, and render them so obnoxious to the mice, that they will not eat them.

128. *Method of cultivating Radishes for Salad, so as to have them ready at all Seasons of the Year.*

Take seeds of the common radish, and lay them in rain water to steep for twenty-four hours; then put them quite wet into a small linen bag, well tied at the mouth with packthread. If you have steeped a large quantity of seeds, you may divide them into several bags. Then expose the bags in a place where they will receive the greatest heat of the sun, for about twenty-four hours, at the end of which time the seed will begin to grow, and you may then sow it in the usual manner, in earth well exposed to the heat of the sun. Prepare two small tubs to cover each other exactly. These may be easily provided, by sawing a small cask through the middle, and they will serve in winter; in summer one will be sufficient for each kind of earth that has been sown. As soon as you have sown your seeds you must cover them with your tub, and at the end of three days you will find radishes of the size and thickness of young lettuces, having at their extremities two small round leaves, rising from the earth, of a reddish colour. These radishes, cut or pulled up, will be excellent, if mixed with salad, and they have a much more delicate taste than the common radishes which are eaten with salt.

By taking the following precautions you may have them in the winter, and even during the hardest frosts: After having steeped the seeds in warm water, and exposed them to the sun as already directed, or in a place sufficiently hot to make them shoot forth, warm the two tubs; fill one of them with earth well dunged; sow your seeds, thus prepared, in one of them, and cover it with the other tub; you must then be careful to sprinkle it with warm water as often as may be necessary. Then carry the two tubs closely joined, taking care they cover each other, into a warm vault, or cellar, and at the end of fifteen days you may gather a fine salad.

129. *To preserve Strawberry Plants from the Heat of the Sun, &c.*

Sir Joseph Banks, from a variety of experiments, and the experience of many years, recommends a general revival of the now almost obsolete practice of laying straw under strawberry-plants, when the fruit begins to swell: by which means the roots are shaded from the sun, the waste of moisture by evaporation prevented, the leaning fruit kept from damage by resting on the ground, particularly in wet weather, and much labour in watering saved. Twenty trusses of long straw are sufficient for 1800 feet of plants.

130. *Directions for managing Strawberries in Summer.*

On the management of strawberries in June and July, the future prosperity of them greatly depends; and if each plant has not been kept separate, by cutting off the runners, they will be in a state of confusion, and you will find three different sorts of plants.

1. Old plants, whose roots are turned black, hard, and woody.

2. Young plants, not strong enough to flower.

3. Flowering plants, which ought only to be there, and perhaps not many of them.

Before the time of flowering is quite over, examine them, and pull up every old plant which has not flowered; for, if once they have omitted to flower, you may depend upon it they will never produce any after, being too old, and past bearing; but to be fully convinced, leave two or three, set a stick to them, and observe them next year.

If the young plants, runners of last year, be too thick, take some of them away, and do not leave them nearer than a foot of the scarlet, alpines, and wood, and fifteen or sixteen inches of all the larger sorts: and in the first rainy weather in July or August, take them all up, and make a fresh plantation with them, and they will be very strong plants for flowering next year.

Old beds, even if the plants be kept single at their proper distance, examine, and pull *all the old plants* which have not flowered.

When the fruit is nearly all gathered, examine them again, and cut off the runners; but if you want to mak a fresh plantation, leave some of the two first, and cut off all the rest. Then stir up the ground with a trowel, or three-pronged fork, and in August they will be fit to transplant

If you have omitted in July do not fail in August, that the runners may make good roots to be transplanted in September, for, if later, the worms will draw them out of the ground, and the frost afterwards will prevent them from striking root; the consequence of which is, their not flowering the next spring; and you will lose a year.

131. *To cultivate the common Garden Rhubarb.*

It is not enough to give it depth of good soil, but it must be watered in drought; and in winter must be well covered with straw or dung If this is attended to, your rhubarb will be solid when taken out of the ground; and your kitchen, if a warm one, when cut into large pieces, will soon fit it for use.

132. *Method of cultivating and curing Turkey Rhubarb from Seed.*

The seed should be sown about the beginning of February, on a bed of good soil, (if rather sandy, the better) exposed to an east or west aspect in preference to the south; a full sun being prejudicial to the vegetation of the seeds; and to the plants whilst young.

The seeds are best sown moderately thick, (broad cast) treading them regularly in, as is usual with parsnips and other light seeds, and then raking the ground smooth. When the season is wet, make a bed for sowing the rhubarb seeds upon, about two feet thick, with new dung from the stable, covering it near one foot thick with good soil. The intent of this bed is not for the sake of warmth, but solely to prevent the rising of earth-worms, which in a moist season will frequently destroy the young crop.

If the seed is good, the plants often rise too thick; if so, when they have attained six leaves, they should be taken up carefully (where too close), leaving the standing crop eight or ten inches apart; those taken up may be planted at the same distance in a fresh spot of ground, in order to furnish other plantations. When the plants in general are grown to the size that cabbage plants are usually set out for a standing crop, they are best planted where they are to remain, in beds four feet wide, one row along the middle of the bed, leaving two yards distance betwixt the plants, allowing an alley between the beds about a foot wide, for conveniency of weeding the plants.

In the autumn, when the decayed leaves are removed, if the shovelling of the alleys is thrown over the crowns of the plants, it will be found of service.

133. *Cultivation of Turkey Rhubarb by Offsets.*

Slip off several offsets from the heads of large plants; set them with a dibble about a foot apart, in order to remove them into other beds, and in the autumn they will be in a thriving state.

134. *Method of curing Rhubarb.*

The plants may be taken up, either early in the spring or in autumn, when the leaves are decayed, in dry weather if possible; when the roots are to be cleared from dirt (without washing), let them be cut into pieces, and with a sharp knife freed from the outer coat, and exposed to the sun and air for a few days, to render the outside a little dry.

In order to accelerate the curing the largest pieces, a hole may be scooped out with a penknife; these and the smaller parts are then to be strung on packthread, and hung up in a warm room, where it is to remain till perfectly dry. Each piece may be rendered more sightly by a common file, fixing it in a small viceduring that operation; afterwards rub over it a very fine powder, which the small roots furnish in beautiful perfection, for this and every other purpose where rhubarb is required.'

An easier and simpler method of drying rhubarb is, after cutting the root into handsome pieces, to wrap up each separately, in one or more pieces of whitish-brown paper, and then to place them on the hob of a common Bath stove. Lemon and orange-peel dry beautifully in this way.

135. *Proper Soil for the Culture of Turnips.*

Sandy loams, in good heart, are most favourable to their growth, though they will thrive well on strong loams, if they are not wet; but on clayey, thin, or wet soils, they are not worth cultivating; for though a good crop may be raised on such ground, when well prepared and dunged, more damage is done by taking off the turnips in winter, in poaching the soil, than the value of the crop will repay.

136. *Preservation of Succulent Plants.*

Green succulent plants are better preserved after a momentary immersion in boiling water, than otherwise. This practice has been successfully used in the preservation of cabbage, and other plants, dried for keeping; it destroys the vegetable life at once, and in a great degree prevents that decay which otherwise attends them.

137. *Various useful Properties of Tobacco to Gardeners.*

Tobacco is employed for so many different uses, that there is no person possessed of a garden but will find both pleasure and profit in the cultivation of it, especially as it is now at such a high price. The seed is very cheap, and may be procured of most nurserymen, and will answer the same end as the foreign for most purposes, and considerably cheaper.

(The cultivation of tobacco, however, for economical purposes, is prohibited in Great Britain and Ireland.)

Uses to which it may be applied.—1. To Florists, for two elegant annual plants to decorate the borders of the flower-garden; or, on account of their height, to fill up vacant places in the shrubberies; or, when put into pots, they will be very ornamental in the greenhouse during the winter.

2. Kitchen-gardeners would in a few days lose their crops of melons, if not immediately fumigated with tobacco smoke, when attacked by the red spider; and it is useful to destroy the black flies on cucumbers in frames.

3. Fruit-gardeners. When peach and nectarine-trees have their leaves curled up, and the shoots covered with smother flies; or the cherry-trees have the ends of the shoots infested with the black dolphin fly; canvas, pack-sheets, or doubled mats, nailed before them, and frequently fumigated under them, will destroy those insects.

4. Forcing-gardeners, who raise roses and kidney-beans in stoves, can soon destroy the green flies which cover the stalks and buds of roses, and the insects which appear like a mildew on kidney-beans, by the assistance of the fumigating bellows.

5. Nurserymen. When the young shoots of standard cherry-trees, or any other trees, are covered with the black dolphin flies, an infusion is made with the leaves and stalks of tobacco; a quantity is put into an earthen pan, or small oblong wooden trough: one person holds this up, whilst another gently bends the top of each tree, and lets the branches remain about a minute in the liquor, which destroys them.

6. Graziers, when their sheep are infected with the scab, find relief from making a sheep-water with an infusion of the leaves and stalks. Moles, when only a

few hills are at first observed, may probably be soon driven out of the ground, by fumigating their holes.

7. Herb tobacco is also greatly improved by having some of the leaves, when dried, cut with a pair of scissars, and mixed with the herbs in any quantity you may think proper, according to the strength you require, and save you the expense of buying tobacco. The herbs generally used for this purpose are coltsfoot and wood betony leaves; the leaves and flowers of lavender, rosemary, thyme, and some others of the like nature.

138. *To prevent Blossom and Fruit Trees from being damaged by early Spring Frost.*

If a rope (a hempen one it is presumed) be introduced among the branches of a fruit-tree in blossom, and the end of it brought down, so as to terminate in a bucket of water, and should a slight frost take place in the night-time, in that case the tree will not be affected by the frost; but a film of ice, of considerable thickness, will be formed on the surface of the bucket in which the rope's end is immersed, although it has often happened that another bucket of water, placed beside it for the sake of experiment, has had no ice at all upon it.

139. *Chinese Mode of propagating Fruit Trees.*

The ingenious people of China have a common method of propagating several kinds of fruit-trees, which of late years has been practised with success in Bengal. The method is simply this:—They strip a ring of bark, about an inch in width, from a bearing branch, surround the place with a ball of fat earth, or loam, bound fast to the branch with a piece of matting: over this they suspend a pot or horn, with water, having a small hole in the bottom just sufficient to let the water drop, in order to keep the earth constantly moist. The branch throws new roots into the earth just above the place where the ring of bark was stripped off. The operation is performed in the spring, and the branch is sawn off and put into the ground at the fall of the leaf. The following year it will bear fruit.

140. *To improve Fruit Trees by Attention to the Colour of the Soil.*

The colour and also the quality of soils have an effect on the colour and flavour of fruits—even on the colour of many flowers. The effects of the colour of soils, on that of fruits, are most perceptible on the delicate kinds, such as grapes, peaches, &c. but to a nice observer it extends in a greater or less degree to all fruits. For instance, if two black Hamburgh grapes, made from the cuttings of the same plant, shall be planted. the one in a dry hazely loam, and the other in a moist black earth, the fruit of the one will be brown, or of a grizzly colour, and the other very dark red or black; and the grape will be more juicy, though better in flavour, than the other grown in a drier soil.

141. *To increase the Growth in Trees.*

It may be depended upon as a fact, that by occasionally washing the stems of trees, their growth will be greatly increased: for several recent experiments have proved that all the ingredients of vegetation united, which are received from the roots, stem, branches, and leaves, of a mossy and dirty tree, do not produce half the increase either in wood or fruit, that another gains whose stem is clean. It is clearly obvious that proper nourishment cannot be received from rain, for the dirty stem will retain the moisture longer than when clean, and the moss and dirt will absorb the finest parts of the dew, and likewise act as a screen, by depriving the tree of that share of sun and air which it requires.

A common scrubbing-brush and clean water is all that is necessary, only care must be observed not to injure the bark.

142. *To prevent Hares and Rabbits from barking young Plantations.*

Hares, rabbits, and rats, have a natural antipathy to tar; but tar, though fluid, contracts, when exposed to the sun and air for a time, a great dryness and a very binding quality; and if applied to trees in its natural state, will occasion them to be bark bound. To remove this difficulty, tar is of so strong a savour, that a small quantity mixed with other things, in their nature open and loose, will give the whole mixture such a degree of its own taste and smell, as will prevent hares, &c. touching what it is applied to.

Take any quantity of tar, and six or seven times as much grease, stirring and mixing them well together; with this composition, brush the stems of young trees, as high as hares, &c. can reach; and it will effectually prevent their being barked.

143. *Bad Effects of Iron Nails, &c. on Fruit Trees, or mischievous Effects Iron of Nails in Conjunction with Branches of Fruit Trees.*

It often happens that some of the limbs of fruit trees, trained against a wall, are blighted and die, while others remain in a healthy and flourishing state. This has been hitherto erroneously attributed to the effects of lightning; but, from closer observation, and from several experiments, it has been found to arise from the corroding effects of the rust of the nails and cramps with which trees in this situation are fastened. To avoid this inconvenience, therefore, it requires only to be careful in preventing the iron from coming in contact with the bark of the trees.

144. *To destroy Moss on Trees.*

Remove it with a hard scrubbing-brush in February and March, and wash the trees with cow-dung, urine, and soap-suds.

145. *Necessity of taking off superfluous Suckers from Shrubs.*

Many flowering shrubs put out strong suckers from the root, such as lilacs, syringa, and some of the kinds of roses, which take greatly from the strength of the mother plant; and which, if not wanted for the purpose of planting next season, should be twisted off, or otherwise destroyed.

146. *To cure the Disease in Apple Trees.*

Brush off the white down, clear off the red stain underneath it, and anoint the places infected with a liquid mixture of train oil and Scotch snuff.

147. *To cure the Canker in Trees.*

Cut them off to the quick; and apply a piece of sound bark from any other tree, and bind it on with a flannel roller. Cut off the canker, and a new shoot will grow strong, but in a year or two you will find it cankered.

148. *A Method of curing Fruit Trees infected with an Easterly Blight.*

Where valuable fruit-trees are infected with this blight, they may, with little trouble and expense, be in a short time cured, by fumigating them with brimstone strewed on lighted charcoal; this effectually kills it; but the workman must observe to get to windward of the trees, as the fumes, both of brimstone and charcoal, are very offensive and pernicious.

Mr. Miller recommends washing and sprinkling the blighted trees from time to time, with common water (that is, such as hath not had any thing steeped in it), and the sooner that is performed (whenever we apprehend danger) the better; and if the young and tender shoots seem to be much infected, wash them with a woollen cloth so as to clear them, if possible, from all glutinous matter, that their respiration and perspiration may not be obstructed; and if some broad flat pans, or tubs, are placed near the trees, it will keep their tender parts in a ductile state, and greatly help them; but whenever this operation of washing the trees is performed, it should be early in the day, that the moisture may be exhaled before the cold of the night comes on, especially if the nights are frosty, nor should it be done when the sun shines very hot upon the wall, which would be subject to scorch up the tender blossom.

149. *Experienced Method of healing Wounds in Trees.*

This method consists in making a varnish of common linseed oil, rendered very drying, by boiling it for the space of an hour, with an ounce of litharge to each pound of oil, mixed with calcined bones, pulverized and sifted, to the consistence of an almost liquid paste. With this paste the wounds of trees are to be covered, by means of a brush, after the bark and other substance have been pared, so as to render the whole as smooth and even as possible. The varnish must be applied in dry weather, in order that it may attach itself properly.

150. *Composition for healing Wounds in Trees.*

Take of dry pounded chalk *three* measures; add of common vegetable tar, *one* measure; mix them thoroughly, and boil them, with a low heat, till the composition becomes of the consistency of bees'-wax; it may be preserved for use, in this state, for any length of time. If chalk cannot conveniently be got, dry brick-dust may be substituted.

Application.—After the broken or decayed limb has been sawed off, the whole of the *saw-cut* must be very carefully pared away, and the rough edges of the bark, in particular, must be made quite smooth: the doing of this properly is of great consequence; then lay on the above composition, hot, about the thickness of half-a-crown, over the wounded place, and over the edges of the surrounding bark; it should be spread with a hot trowel.

151. *To prune Wall Fruit.*

Cut off all fresh shoots, however fair they may appear to the eye, that will not, without much bending, be well placed to the wall; for if any branch happen to be twisted or bruised in the bending or turning (which you may not easily perceive), although it may grow and prosper for the present, yet it will decay in time, and the sap or gum will issue from that place.

152. *To prune Vines to Advantage.*

In pruning vines, leave some new branches every year, and take away (if too many) some of the old, which will be of great advantage to the tree, and much increase the quantity of fruit.

When you trim your vine, leave two knots, and cut them off the next time; for, usually, the two buds yield a bunch of grapes. Vines, thus pruned, have been known to bear abundantly, whereas others that have been cut close to please the eye, have been almost barren of fruit.

153. *The most proper Times when Leaves of Trees ought to be collected for pharmaceutical and economical Purposes.*

It is at that period when the plant is in full flower, that the leaves possess their full virtue. They drop off when their particular life has terminated.

TIMBER.

154. *To promote the Growth of Forest Trees.*

It is highly to be censured, the neglect of permitting ivy-twines, which grow to forest trees, to remain attached to them. Their roots entering into the bark, rob the trees of much of their nourishment; they in a manner strangle their supporters, by impeding the circulation of their juices, and in time destroy the trees. They should be torn up by the roots, for, if any part of them adhere to the tree, they will spread, as they obtain nourishment by their adhering roots.

155. *White-washing the Trunks of Trees recommended.*

'Being one day upon a visit (observes Mr. Northmore, who recommends this experiment) at my friend's near Yarmouth, in the Isle of Wight, I remarked that several of the trunks of trees in his orchard had been covered with whitewash; upon inquiring the reason he replied, that he had done it with a view to keep off the hares, and other animals, and that it was attended not only with that good effect, but several others, for it made the rind smooth and compact, by closing up the cracks; it entirely destroyed the moss; and as the rains washed off the lime, it manured the roots. These several advantages derived from so simple a practice deserve to be more generally known. The white-wash is made in the usual manner, with lime, and may be applied twice, or oftener, if necessary.

156. *To cure Wounds in Trees.*

Wounds in trees are best cured by covering them with a coat of common lead paint without turpentine (for turpentine is poison to vegetation) in the sun, on a fine dry day.

157. *Mr. Forsyth's Method of curing Injuries and Defects in Fruit and Forest Trees, published by Command of his late Majesty.*

Mr. Forsyth directs, in his Treatise on the Management and Culture of Fruit Trees, &c. that all the decayed, hollow, loose, rotten, injured, diseased, and dead parts, should be entirely cut away, till the knife extend to the sound or solid wood, so as to leave the surface perfectly smooth. The composition which he has invented, and directed to be then applied, is thus prepared: To twenty-five gallons of human urine, and a peck of lime, add a sufficient quantity of fresh cow-dung to bring it to the consistency of paint. This composition should then be laid on with a painter's brush, to the thickness of about an eighth of an inch, and the edges finished off as thin as possible. In the mean time, a tin box, the top of which is perforated with holes, should be filled with a mixture of five parts of dry pulverized wood-ashes, and one part bone-ashes, also reduced to powder; from which it is to be scattered or dredged over the surface of the composition; and, when it has been suffered to absorb half an hour, an additional portion of the powder is to be gently applied with the hand till the plaster acquire a smooth and even surface. As the edges of the plastered wounds grow up, care must be taken to prevent the new wood from coming in contact with that which is decayed; and, for this purpose, it will be proper to cut out the latter, in proportion as the growth of the former advances; a hollow space being left between the two, that the new wood may have sufficient space to extend and fill up the cavity, thus forming, as it were, a new tree. In consequence of this process, old and decayed pear-trees, in the second summer after its being thus applied, are said to have produced fruit of the best quality and finest flavour; and, in the course of four or five years, to have even yielded such abundant crops, as young and healthy trees could not have borne in twenty years. By the same method, too, large and aged elm-trees, all the parts of which were broken, having only a very small portion of bark left on the trunk, shot forth stems from their tops to the height of more than thirty feet, within six or seven years after the composition had been applied. It appears, therefore, that both forest and fruit-trees, however aged or decayed, may be preserved, and even renovated; while the latter, in particular, are rendered more fruitful than at any earlier period of their growth. The health and vegetation of trees in general, Mr. Forsyth remarks, may be greatly promoted by scraping them, by cutting away the cankered parts, and by washing the stems annually in February or March: and he recommends fresh soap suds, and the composition, to be applied to the stems and branches of fruit, forest, or timber-trees of any kind, in the same manner as the ceilings of rooms are white-washed; which, he asserts, will not only destroy the eggs of insects that would be hatched during the spring and summer, but also prevent the growth of moss. If, therefore, he adds, the same operation be repeated in autumn, after the fall of the leaf, it will kill the eggs of those numerous insects which would otherwise be hatched during that season and the ensuing winter. So that this process, in fact, not only contributes to the nourishment of the tree, but actually preserves its bark in a fine healthful state.

158. *To preserve Wood in damp Situations.*

Two coats of the following preparation are to be applied, after which the wood is subject to no deterioration whatever from humidity. Twelve pounds of resin are to be beaten in a mortar, to which three pounds of sulphur and twelve pints of whale oil are to be added. This mixture is to be melted over the fire, and stirred during the operation. Ochre reduced to an impalpable powder, by triturating it with oil, may then be combined in the proportion necessary to give either a lighter or a darker colour to the material. The first coat should be put on lightly, having been previously heated; the second may be applied in two or three days, and a third after an equal interval, if from the peculiar dampness of the situation it should be judged expedient.

Remark.—It is highly probable (though the experiment has not been tried) that this composition would be improved by adding a small portion of the liquid leather, which is now commonly sold in London, being the refuse of the purification of fish oil by tar.

Where the work will bear the expense, and is not exposed to a heat of more than 130 degrees of Fahrenheit, the best composition is the following: Equal parts of turpentine (the fluid resin, not the essential oil) bees' wax, black resin and maltha, or coal tar, boiled together till they cease to rise, that is, till the white cream or scum proceeding from the separation of the essential oil disappears. Apply it warm with a turpentine brush—two or three coats, to cover the cracks or pores left by the brush. This lute was first proposed by Chaptal, without the addition of the coal tar, which is a great improvement. A piece of wood covered with three coats of it, and immersed for two years in water, was found to be quite dry on cutting off the lute.

Take care not to allow water to fall into the pan, as it would make the hot materials explode. If the composition catch fire, put on the cover directly, and remove the pan for an instant from the fire.

159. *Cause and Prevention of the Dry Rot.*

The cause of the dry rot in wood is moisture; and to prevent well-dried timber from decaying above or under ground, is by charring it well.

160. *Cure for the Dry Rot in Timber, so as to make it indestructible by Water.*

Melt twelve ounces of resin in an iron pot; add three gallons of train oil, and three or four rolls of brimstone; and when the brimstone and resin are melted and become thin, add as much Spanish brown, or red and yellow ochre, or any other colour required, first ground fine with the same oil, as will give the whole a shade of the depth preferred; then lay it on with a brush as hot and thin as possible; some time after the first coat is dried, give it a second. This preparation will preserve planks for ages, and keep the weather from driving through brick work.

161. *Method of trying the Goodness of Timber for Ship Building, used in the Arsenal at Vienna.*

One person applies his ear to the centre of one end of the trunk, while another, with a key, hits the other end with a gentle stroke. If the tree be sound and good, the stroke will be distinctly heard at the other end, though the tree should be an hundred feet or more in length.

162. *To season and render Green Timber immediately fit for Use.*

After the timber has been cut down from the stock, take off immediately both the outer bark and also the inner rind, clean to the wood; cut it up to the different purposes for which it may be wanted, whether scantlings for roofings, joists, planks, deals, or the like. After preparing them for their proper use, steep them in lime-water a few days, or pay them over with a little of the lime, along with the water. The hotter it is used after the lime is slaked, so much the better. Lime-water is made by slaking the lime-shells in water. This will answer equally well for round trees. The author of this method says, he has been, for a great number of years past, used to take down and repair both ancient and modern buildings, in which a good deal of Scots fir had been used, but he never found one inch either rotten or worm-eaten, where it was in the least connected with lime, and kept dry; on the contrary, he found it more hard and firm than when first used.

BUILDING.

163. *Artificial Stone Floors and Coverings for Houses, as made in some Parts of Russia.*

'The floors and coverings of houses, in some parts of South Russia, are made in the following manner:—For a floor, let the ground be made even, and some stones of any shape be put on, and, with a heavy wooden rammer, force or beat the stones into the ground, continuing to beat the floor till it become quite even, and incapable of receiving any farther impression. Then run lime, immediately after it has been slacked, through a fine sieve, as expeditiously as possible, because exposure to the air weakens the lime. Mix two parts of coarse sand, or washed gravel, for there must be no earth in it, with one part of lime-powder, and wet them with bullock's blood; so little moist, however, as merely to prevent the lime from blowing away in powder; in short, the less moist the better. Spread it on the floor, and, without a moment's loss of time, let several men be ready, with large beetles, to beat the mixture, which will become more and more moist by the excessive beating requisite. Then put on it some of the dry sand and lime mixed, and beat it till like a stone. If required to be very fine, take for the next layer finely sifted lime, with about a tenth part of rye-flour, and a little ox-blood; beat it till it becomes a very stiff mortar, and then smooth it with a trowel. The next day again smooth it with a trowel; and so continue to do, daily, till it be entirely dry. When it is quite dry and hard, rub it over with fresh ox-blood, taking off all which it will not imbibe. No wet will penetrate this composition, which, however, after some time, is often painted with oil colours. The whole floor appears as a single stone, and nothing will affect it. The drier it is used, the better, provided that, with much beating, it becomes like a very stiff mortar, and evidently forms a compact body. On flat tops of houses, the beetle, or rammers' ends must be smaller, to prevent the rebounding of the boards and timber, which would crack the cement; but, when the thickness of a foot is laid on, it will beat more firmly. A thin coating of ox-blood, flour, and lime, being beat in large, strong, wooden troughs, or mortar, till it can be spread with a trowel, may be used without beating it again on the floor or house-top; but it must be very stiff, and used most expeditiously. Even frost will not affect it. With this composition, artificial stone may be made, rammed very hard into strong wooden frames of the required shape; particularly to turn arches for buildings of rammed earth. It is well known that earth which is not too argillaceous, with only the moisture it has when fresh dug, on being rammed between frames of wood, till the rammer will no longer impress it, makes eternal walls; but a mass as hard as stone may be made with a little lime added to sand, horse-dung, and ox-blood. The more the lime is beaten, the moister it becomes; and it must contain so much moisture as to become, by beating, a solid mass, adhering in all its parts, and not remain crumbling, that will properly set as mortar. If there be too little moisture at first, it will remain a powder; if there be too much, it will become a soft mortar. Lime is of no use, mixed with clay or vegetable earths; which, if well beaten, are stronger without it.

164. *To cure Damp Walls.*

Boil two quarts of tar, with two ounces of kitchen-grease, for a quarter of an hour, in an iron pot. Add some of this tar to a mixture of slacked lime and powdered glass, which have passed through a flour sieve, and been completely dried over the fire in an iron pot, in the proportion of two parts of lime and one of glass, till the mixture becomes of the consistence of thin plaster. The cement must be used immediately after being mixed, and therefore it is proper not to mix more of it than will coat one square foot of wall, since it quickly becomes too hard for use; and care must be taken to prevent any moisture from mixing with the cement. For a wall merely damp, a coating one-eighth of an inch thick is sufficient; but if the wall is wet, there must be a second coat. Plaster made of lime, hair, and plaster of Paris, may afterwards be laid on as a cement. The cement above described will unite the parts of Portland stone or marble, so as to make them as durable as they were prior to the fracture.

165. *To increase the Durability of Tiles for covering Buildings.*

The following composition has been found to be of extraordinary durability, as a glazing or varnish for tiles. No sort of weather, even for a considerable length of time, has had any effect upon it. It prevents that absorption of water, by which common tiles are rendered liable to crumble into dust, hinders the shivering of tiles, and gives to red bricks a soft lustre, by which their appearance is much improved.

Over a weak fire heat a bottle of linseed oil, with an ounce of litharge, and a small portion of minium, till such time as a feather, used in stirring it, shall be burnt to the degree of being easily rubbed to powder between the fingers. Then take off the varnish, let it cool, clarify it from any impurities which may have fallen to the bottom, and heat it again. Having, in the mean time, melted from three to four ounces of pitch, mix this with the warm varnish. The specific gravity of the pitch hinders it from mingling thoroughly with the varnish, though it even remain so long upon the fire as to be evaporated to considerable thickness. It is not till the varnish be cooled, nearly to the consistency of common syrup, that this effect takes place in the requisite degree. If it be too thick, let hot varnish be added to bring it to the proper consistency; if it be too thin, add melted pitch. Next, put in as much brick-dust as the mixture can receive, without being made too thick for convenient use. The finer the brick-dust, and the easier it is to be moved with the point of a pencil, so much the fitter will it be to fill up the chinks and unevenness of the bricks; and, as it were, to incorporate itself with their substance. Prepare the brick-dust in the following manner:—Take a certain number of pieces of good brick, beat them into dust, and sift the dust in a hair sieve. Then, to improve its fineness, rub it on a stone with water, dry it, and mix it with the varnish in the necessary proportion. If the brick-dust be naturally of too dark a colour, a portion of some that is brighter may be added, to make the colour clear.

It is to be laid on the tiles in the same manner in which oil colours in general are put upon the substances on which they are applied. The composition must be heated from time to time when it is to be used.

166. *Economical Method of employing Tiles for the Roofs of Houses.*

A French architect (M. Castala) has invented a new method of employing tiles for the roofs of houses, so as to save one half of the quantity usually employed for that purpose. The tiles are made of a square instead of an oblong form; and the hook that fastens them is at one of the angles, so that, when fastened to the laths, they hang down *diagonally*, and every tile is covered one-fifth part on two sides by the superior row.

167. *To improve Chimney Fire-Places, and increase the Heat, by a proper Attention to the Setting of Stoves, Grates, &c.*

The best materials for setting stoves or grates are fire-stone and common bricks and mortar. Both materials are fortunately very cheap. When bricks are used, they should be covered with a thin coating of plaster, which, when it is dry, should be white-washed. The fire-stone should likewise be white-washed when that is used; and every part of the fire-place, which is not exposed to being soiled and made black by the smoke, should be kept as white and clear as possible. As *white* reflects more heat, as well as more light, than any other colour, it ought always to be preferred for the inside of a chimney fire-place: and *black*, which reflects neither light nor heat, should be more avoided.

168. *To cure Smoky Chimneys.*

Put on the top of the chimney a box, in each of whose sides is a door hanging on hinges, and kept open by a thin iron rod running from one to the other, and fastened by a ring in each end to a staple. When there is no wind, these doors are at rest, and each forms an angle of 45°, which is decreased on the windward side in proportion to the force of the wind, and increased in the same ratio on the leeward side. If the wind be very strong, the door opposed to the wind becomes close, while the opposite one is opened as wide as it can be.—If the wind strikes the corner of the box, it shuts two doors, and opens their opposites. This scheme has been tried with success in a chimney which always filled the room with smoke, but which, since adopted, has never smoked the room at all. The expense is trifling, and the apparatus simple.

169. *A Preparation to preserve Wood from catching Fire, and to preserve it from Decay.*

A member of the Royal Academy at Stockholm says, in the memoirs of that academy, "Having been within these few years to visit the alum mines of Loswers, in the province of Calmar, I took notice of some attempts made to burn the old staves of tubs and pails that had been used for the alum works. For this purpose they were thrown into the furnace, but those pieces of wood which had been penetrated by the alum did not burn, though they remained for a long time in the fire, where they only became red; however, at last they were consumed by the intenseness of the heat, but they yielded no flame."

He concludes, from this experiment, that wood, or timber, for the purpose of building, may be secured against the action of fire, by letting it remain for some time in water, wherein vitriol, alum, or any other salt has been dissolved, which contains no inflammable parts.

To this experiment it may be added, that wood, which has been impregnated with water, wherein vitriol has been dissolved, is very fit for resisting putrefaction, especially if afterwards it is brushed over with tar, or some kind of paint; in order to this, the wood must be rubbed with very warm vitriol water, and afterwards left to dry, before it is painted or tarred. Wood prepared in this manner will for a long time resist the injuries of the air, and be preserved in cellars and other low moist places. It is to be observed, that if a dissolution of vitriol is poured on such parts of timber where a sort of champignons are formed by moisture, and rubbed off, none will ever grow there again.

By boiling, for some hours, the spokes of wheels in vitriol water, they are not subject to rottenness in the parts where they enter the stocks. After boiling them in this manner, they are dried as perfectly as possible, and then, in the accustomed way, painted with oil colour.

For Cheap and excellent Composition for preserving Weather Boarding, Paling, and all other Works liable to be injured by the Weather.

Well burnt lime will soon become slaked by exposure in the open air, or even if confined in a situation not remarkably dry, so as to crumble of itself into powder. This is called air-slaked lime, in contradistinction to that which is slaked in the usual way, by being mixed with water. For the purpose of making the present composition to preserve all sorts of wood-work exposed to the vicissitudes of the weather, take three parts of this air-slaked lime, two of wood-ashes, and one of fine sand; pass them through a fine sieve, and add as much linseed oil to the composition as will bring it to a proper consistence for working with a painter's brush. As particular care must be taken to mix it perfectly, it should be ground on a stone slab with a proper muller, in the same manner as painters grind their white lead, &c.; but where those conveniences are not at hand, the ingredients may be mixed in a large pan, and well beat up with a wooden spatula. Two coats of this composition being necessary, the first may be rather thin; but the second should be as thick as it can conveniently be worked. This most excellent composition for preserving wood, when exposed to the injuries of the weather, is highly preferable to the customary method of laying on tar and ochre.

171. *To prevent the disagreeable Smell arising from House Drains.*

As the diffusion of this noxious matter, within our dwellings, tends to produce disease and mortality, it cannot be too generally known, that a cheap and simple apparatus has been contrived for carrying off the waste water, &c. of sinks, and which at the same time prevents the possibility of any air ever returning back into the house from thence, or from any drain which may be connected with it. It is known by the name of a *stink trap*, and is made in brick by every bricklayer in London.

172. *Improved Ventilators for Rooms.*

Different methods are adopted for ventilating, or changing the air of rooms.—Thus,

Mr. Tid admitted fresh air into a room by taking out the middle upper sash pane of glass, and fixing in its place a frame box, with a round hole in its middle, about six or seven inches diameter, in which hole are fixed, behind each other, a set of sails, of very thin, broad copper plates, which spread over and cover the circular hole, so as to make the air, which enters the room, and turning round these sails, to spread round in thin sheets sideway, and so not to incommode persons by blowing directly upon them, as it would do if it were not hindered by the sails. This well-known contrivance has generally been employed in public buildings, but is very disagreeable in good rooms; instead of it, therefore, the late Mr. Whitehurst substituted another, which was, to open a small square or rectangular hole, in the party wall of the room, in the upper part, near the ceiling, at a corner or part distant from the fire; before it he placed a thin piece of metal, or pasteboard, &c. attached to the wall in its lower part, just before the hole, but declining from it upwards, so as to give the air that enters by the hole a direction upwards against the ceiling, along which it sweeps, and disperses itself through the room, without blowing in a current against any person. This method is very useful to cure smoky chimneys, by thus admitting, conveniently, fresh air. A picture, placed before the hole, prevents the sight of it from disfiguring the room.

173. *To preserve Churches from Dilapidation.*

The earth, next the walls of a church, lying higher in any part than the floor of it, is not only very injurious to the walls, but to the wainscot next to the same on the inside, by causing what is absurdly called the dry rot, and, where there is no wainscot, producing a green moss. The water from the eaves, where there is no parapet, should be carried off by a spout, to extend much farther than the length of the wall, to prevent the wind from driving the wet against it. Where there are parapets, it should be brought down close to the wall, in leaden pipes, at the foot of which should be a stone somewhat hollow, to prevent it penetrating, and throw it off from the wall; a pipe should be also continued from the roof of the steeple to that of the church. These matters attended to, will prove of great advantage to the sacred fabrics, and save much expense in the repairs.

RART II.

DOMESTIC ECONOMY.

174. *To purify infectious Air in a Room.*

FUMIGATE the apartment with muriatic acid gas or with a little oxymuriatic gas. Care must be taken not to inhale the oxymuriate, as it is poison. Steel furniture must be guarded from the acid.

175. *To preserve Fish and Meat in the Portuguese Manner.*

The Portuguese make a trade of what they call *pesche moliæ*, which is fish cut in small pieces, with salt and sugared tamarind. Fish thus preserved may be carried to sea, and will not be found too salt. Meat may also be thus preserved, by throwing away the stones and strings of the tamarinds, and adding a small portion of Cayenne pepper.

176. *Easy Method of preserving Animal Food sweet for several Days in the Height of Summer.*

Veal, mutton, beef, or venison, may be kept for nine or ten days perfectly sweet and good, in the heat of summer, by lightly covering the same with bran, and hanging it in a high and windy room; therefore a cupboard full of small holes, or a wire safe, so as the wind may have a passage through, is recommended to be placed in such a room, to keep away the flies.

177. *To preserve Meat by Treacle.*

This experiment has been successfully tried in the following manner:—A gentleman put a piece of beef into treacle, and turned it often. At the end of a month he ordered it to be washed and boiled, and had the pleasure to find it quite good, and more pleasant than the same piece would have been in salt for that time. But the expense of this method must confine it to the opulent.

178. *To preserve Beef and Mutton, in a sound State, — a Voyage to the West Indies.*

As soon as the meat is cold it must be cut up in quarters, and sprinkled with the following ingredients: lignum vitæ, in fine chips, one pound; common salt, four ounces; coarse sugar, four ounces; salt prunella, half an ounce: when it has been well sprinkled in, close the whole in sheet lead, lay it in a chest, and fill it with fresh saw-dust. Meat so prepared has been kept two months in the finest order. When taken out to be dressed it should be wiped and scraped clean, and roasted as quick as possible.

179. *To sweeten Meat, Fish, &c. that is tainted.*

When meat, fish, &c. from intense heat, or long keeping, are likely to pass into a state of corruption, a simple and pure mode of keeping them sound and healthful is by putting a few pieces of charcoal, each the size of an egg, into the pot or saucepan, wherein the fish or flesh are to be boiled. Among others, an experiment of this kind was tried upon a turbot, which appeared too far gone to be eatable: the cook, as advised, put three or four pieces of charcoal, each the size of an egg, under the strainer, in the fish kettle; after boiling the proper time, the turbot came to table perfectly sweet and firm.

180. *To preserve Water and Meat, from Putrefaction, in long Voyages.*

The crews of the two Russian ships, which lately sailed round the world, were extremely healthy. During the whole three years of their voyage only two men died of the crew of the Neva, and the Naveshda did not lose a single man. It is already known that their fresh water was preserved in charred casks, but it is not so generally known that they used the same precaution for preserving their salted provisions. The beef they carried out with them tasted as pleasantly upon their return, as it did three years before, when first salted.

181. *Improvement in the Management of Bees.*

The improvement is that of having double skeps or hives, the one on the top of the other. When the lower skep is filled with honey, it is to be removed after the bees are admitted (through a passage which is made to be opened) into the upper skep; into this skep food must be put, and the bees will remain there, and go on with their work in it. When it is filled with honey, the former skep with food in it, may be replaced, and the bees again admitted into it. The full skep is then to be taken away. This change of the skeps must always be made about Midsummer; and by thus annually removing the full one, more honey will be collected than is usual, and the bees will not be destroyed.

182. *Chinese Method of mending China.*

Take a piece of flint-glass, beat it to a fine powder, and grind it well with the white of an egg, and it joins china without riveting, so that no art can break it in the same place. You are to observe, that the composition is to be ground extremely fine on a painter's stone.

183. *To discover Vitriol in Beer.*

A decoction of galls will turn it blackish, if this be the case.

184. *Excellent Substitute for Table Beer.*

As small beer is apt to become sour in warm weather, a pleasant beer may be made, by adding to a bottle of porter ten quarts of water, and a pound of brown sugar or molasses. After they have been well mixed pour the liquor into bottles, and place them, loosely corked, in a cool cellar. In two or three days it will be fit for use. A spoonful of ginger, added to the mixture, renders it more lively and agreeable to the taste. This might be adopted in the navy instead of grog.

185. *To make good Spruce Beer.*

This cheap and wholesome liquor is thus made: take of water sixteen gallons, and boil the half of it; put the water thus boiled, while in full heat, to the reserved cold part, which should be previously put into a barrel or other vessel; then add 16 pounds of treacle or molasses, with a few table-spoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open, for two days, till the fermentation be abated; then close it up, or bottle it off, and it will be fit to drink in a few days afterwards. In North America, and perhaps in other countries, where the black and white spruce firs abound, instead of adding the essence of the spruce at the same time with the molasses, they make a decoction of the leaves and small branches of these trees, and find the liquor equally good.

It is a powerful antiscorbutic, and may prove very useful in a long sea voyage.

186. *New-invented Composition to be used instead of Yeast.*

To make eight quarts of this composition, boil in common water eight pounds of potatoes, as for eating: bruise them perfectly smooth, and mix with them, whilst warm, two ounces of honey, or any other sweet, and one quart (being the eighth part of a gallon of yeast) of common yeast. And, for making bread, mix three beer pints of the above composition with a bushel of flour, using warm water in making the bread; the water to be warmer in winter than in summer; and the composition to be used in a few hours after it is made; and as soon as the sponge (the mixture of the composition with the flour) begins to fall the first time, the bread should be made and put in the oven.

187. *To loosen the Glass Stopples of Smelling Bottles and Decanters.*

With a feather rub a drop or two of olive oil round the stopple, close to the mouth of the bottle or decanter, which must be then placed before the fire, at the distance of a foot or eighteen inches; in which position the heat will cause the oil to spread downward between the stopple and the neck. When the bottle or decanter has grown warm, gently strike the stopple on one side, and on the other, with any light wooden instrument; then try it with the hand. If it will not yet move, place it again before the fire, adding, if you choose, another drop of oil. After a while strike again as before; and by persevering in this process, however tightly the stopple may be fastened in, you will at length succeed in loosening it.

188. *Improved Corks for preserving Wine or Chemical Liquors.*

Melt together two parts of white wax and one part of beef suet; dip your corks in this mixture, and immediately dry them in a stove upon an iron plate; repeat this operation twice, and the corks thus prepared will preserve any liquor well without imparting any ill flavour thereto.

189. *To judge of the Quality of Wheat Flour.*

As the state of wheat is ascertained by the quantity and quality of the glutinous matter it contains, the following method is made use of for extracting that matter from it.

Take four ounces of the flour of wheat, separated from the bran; let it be mixed with water so as to form a thick paste, which must be thoroughly kneaded for a quarter of an hour. The paste is afterwards to be well washed, continually kneading it with the hands under the water, and changing the water from time to time. This washing and kneading are to be continued until the water no longer becomes white by the operation; the glutinous matter, which is of a whitish grey colour, then remains in the hands. If the wheat was sound, the matter is glutinous and elastic; if the wheat was heated, the matter will be brittle; if the wheat was in a state of fermentation, no glutinous matter will be obtained from it.

190. *To discover if Bread is adulterated with Alum.*

Make a solution of lime in aquafortis, and put a little of this solution into water, in which you have steeped the bread suspected to contain alum. If such should be the case, the acid, which was combined with the alum, will form a precipitate or chalky concretion at the bottom of the vessel.

191. *To preserve Biscuit from Putrefaction.*

To preserve biscuit a long time sweet and good, no other art is necessary than stowing it well-baked in casks exactly caulked, and carefully lined with tin, so as to exclude the air; at the same time the biscuit must be so placed as to leave as little vacant room as possible in the cask; and when the same is opened through necessity, it must be speedily closed again with great care.

192. *To preserve Sea-Bread from the Weevil.*

The fatal effects of the weevil in sea-bread have long been severely felt by seamen employed on long voyages; rewards have been humanely offered by the legislature for a cure or preventive, but hitherto without success.

The following fact was discovered by accident, and is now offered to the public, as a hint worthy the attention of those who may be employed in supplying ships with provisions, or to captains, and the owners of vessels, and may, in all probability, lessen if not wholly remove, an inconvenience so injurious to our valuable navigation. A bag belonging to a powder-mill fell into a quantity of liquid nitre; it was immediately taken out, and plunged into cold water, and hung to dry; several days after this circumstance, the bag was filled with sea-biscuits, and sent on board a West Indiaman, where it was stowed away among the captain's stock. The vessel was nine months out of England before she proceeded on her passage home, when she got becalmed, and remained so long in that situation that her crew was forced to be put on half allowance, more particularly so, as their bread was much destroyed by the weevils, and was hourly consuming. The captain at this time wishing to make use of the bag above-mentioned, which had not been opened since the ship left England, ordered it to be examined, when, greatly to his surprise, the whole contents were found to be perfectly sound, without any appearance of having been injured by any insect whatever: a circumstance solely to be attributed to the quality of the bag.

195. *To make Artificial or Potatoe Bread.*

Put a pound of potatoes in a net, into a skillet with cold water, and (lest the skin break, and let in the water) hang it at a distance (so as not to boil) over the fire till they become soft; then skin, mash, and rub them so as to be well mixed with a pound of flour, a very large spoonful of salt, and two large spoonfuls of yeast; but less of the yeast is better. Then add a little warm water, and knead it up as other dough; lay it a little while before the fire to ferment or rise, then bake it in a very hot oven. Bread made in this manner has been frequently tried, and found to be well-tasted, wholesome, and of good consistence.

194. *Bread made from the Water Gladiole.*

The root of the flowering rush, or water gladiole, when dried and ground, makes a bread but little inferior in colour, nutriment, or taste, to that made from wheaten flour. It is the common food of the Calmucs, and, in deficient harvests, is used in many of the northern parts of the continent.

195. *Ferment for Bread, used by the Inhabitants of Long Island, in the State of New York.*

Take as many hops as may be held between the thumb and three fingers; put them into a pint and a half or a quart of water, and boil them well together. If you have some apples, or a pumpkin, in the house, cut a few slices of either of these, and throw in, and it will be all the better. Then pour the liquor off, or strain it through a coarse cloth, and add three or four spoonfuls of molasses, and stir in as much flour as will mingle with it to the consistence of thin batter. Set the whole in the corner of the kitchen-fire place, or in any temperature of moderate warmth, until a fermentation takes place, which will happen in a few hours, and then mix it with flour.

This will be sufficient for one baking, for a family of eight or ten persons.

196. *Improved Method of salting Butter and Meat.*

Best common salt two parts, saltpetre one part, sugar one part; beat them up together, so that they may be completely blended. To every sixteen ounces of butter add one ounce of the composition; mix it well in the mass, and close it up for use.— It should not be used for a month, that it may be thoroughly incorporated. Butter, thus cured, has been kept for three years perfectly sweet. Keep the air from it, or it spoils. Cover it with an oiled paper, and a board on that.

To cure meat, add one ounce of the above composition to every sixteen ounces of meat. It must be *very well rubbed into the meat.* You cannot have it too finely powdered, nor too well rubbed into the meat.

197. *Method of curing bad Tub Butter.*

A quantity of tub butter was brought to market in the West Indies, which, on opening, was found to be very bad, and almost stinking. A native of Pennsylvania undertook to cure it, which he did, in the following manner:—

He started the tubs of butter in a large quantity of hot water, which soon melted the butter; he then skimmed it off as clean as possible, and worked it over again in a churn, and with the addition of salt and fine sugar, the butter was sweet and good.

198. *Method for taking the Rankness and disagreeable Taste from Irish Salt Butter.*

The quantity proposed to be made use of, either for toasts or melting, must be put into a bowl filled with boiling water, and when the butter is melted, skim it quite off; by this method it is so separated from any gross particles, that it may require a small addition of salt, which may be put into the cold water that is made use of in melting butter for sauce; and though the butter is oiled by hot water, it becomes a fine cream in the boiling for sauce.

199. *To remove the Taste of Turnips from Milk or Butter.*

The taste of the turnip is easily taken off milk and butter, by dissolving a little nitre in spring water, which being kept in a bottle, and a small teacupful put into eight gallons of milk, when warm from the cow, entirely removes any taste or flavour of the turnip.

200. *To make Salt Butter fresh.*

Put four pounds of salt butter into a churn, with four quarts of new milk, and a small portion of arnotto. Churn them together, and, in about an hour, take out the butter, and treat it exactly as fresh butter, by washing it in water, and adding the customary quantity of salt.

This is a singular experiment. The butter gains about three ounces in each pound, and is in every particular equal to fresh butter. It would be greatly improved by the addition of two or three ounces of fine sugar, in powder. A common earthen churn answers the same purpose as a wooden one, and may be purchased at any pot shop.

201. *Chickweed.*

The young shoots and leaves, when boiled, can scarcely be distinguished from spring spinach, and are equally wholesome.

202. *To make Chocolate from Cocoa Nuts.*

Chocolate is made of the small cocoa bean separated from its shells, which being first coarsely pounded in a stone mortar, is afterwards levigated on a slab of the finest grained marble; to this a small quantity of vanilla is added. The mixture is heated, and put into tin moulds of the size in which the cakes appear.

203. *Turkish or Arabian Mode of preparing Coffee.*

The coffee ground or beaten to an impalpable powder, is preserved by closely pressing it down in a wooden box; and the quantity required for use is scraped from the surface by means of a wooden spoon. Two small coffee-pots are employed; in one is boiled the water, generally mixed with the remaining coffee of a former meal; in the other is put the fresh powder, which is sometimes placed near the fire, to become heated before the boiling water is added to it. The mixture is then boiled two or three times, taking care to pour a few drops of cold water upon it the last time, or to place a cloth dipped in cold water over it; then it is allowed to subside, and afterwards poured into the coffee pot which contained only the boiling water.

N. B.—The quantity of coffee powder necessary to make a fine strong tincture of coffee may be estimated as one coffee-cup of coffee-powder, to three dishes of proper coffee-liquor for the table.

204. *Cheap and valuable Substitute for Coffee.*

The flour of rye, and English yellow potatoes, are found an excellent substitute for coffee. These ingredients are first boiled, then made into a cake, which is to be dried in an oven, and afterwards reduced to a powder, which will make a beverage very similar to coffee in its taste, as well as in other properties, and not in the least detrimental to health.

205. *Excellent Substitute for Coffee.*

The seeds of the flower de luce, or common yellow waterflag, being roasted in the same manner as coffee, very much resemble it in colour and flavour, but have something more of a saccharine odour, approaching to that of extract of liquorice. When carefully prepared they possess much more of the aroma of coffee than is to be found in any of the leguminous and gramineous seeds that have been treated in the same manner. Coffee made of these seeds is extremely wholesome and nutritious, in the proportion of half an ounce, or an ounce, to a pint of boiling water.

206. *Another.*

The seeds of foreign grapes have lately been discovered to be an excellent substitute for coffee. When pressed, they first produce a quantity of oil, and afterwards, when roasted and boiled, furnish a liquid much resembling that produced from coffee. The practice is rapidly becoming general in Germany.

207. *Acorn Coffee.*

Take sound and ripe acorns, peel off the shell or husk, divide the kernels, dry them gradually, and then roast them in a close vessel or roaster, keeping them continually stirring; in doing which special care must be taken that they be not burnt or roasted too much, both which would be hurtful.

Take of these roasted acorns (ground like other coffee) half an ounce every other morning and evening, alone or mixed with a drachm of other coffee, and sweetened with sugar, with or without milk.

This receipt is recommended by a famous German physician, as a much esteemed, wholesome, nourishing, strengthening nutriment for mankind; which, by its medicinal qualities, has been found to cure the slimy obstructions in the *viscera*, and to remove nervous complaints when other medicines have failed.

Remark. Since the duty was taken off, West India coffee is so cheap that substitutes are not worth making. On the continent the roasted roots of the wild chicory, a common weed, have been used with advantage.

208. *For improving Coffee.*

To valetudinarians and others the following method of making coffee for breakfast is earnestly recommended, as a most wholesome and pleasant jentacular beverage, first ordered by an able physician.

Let one ounce of fresh ground coffee be put into a clean coffee-pot, or other proper vessel well tinned; pour a pint and a quarter of boiling water upon it, set it on the fire, let it boil thoroughly, and afterwards put it by to settle; this should be done on the preceding night, and on the following morning pour off the clear liquor: add to it one pint of new milk; set it again over the fire, but do no let it boil. Sweetened to every person's taste, coffee thus made is a most wholesome and agreeable breakfast, summer or winter, with toast, bread and butter, rusks, biscuits, &c. This process takes off that raw, acidous, and astringent quality of the coffee, which makes it often disagree with weak stomachs. It should not be drank too warm.

A gentleman of the first fortune in the kingdom, after a variety of medical applications in vain, was restored to health by applying to the above beverage morning and afternoon.

An improved Method of making the Coffee Beverage.—To an ounce of coffee add a common tea-spoonful of the best flour of mustard seed, previous to the boiling. To those unacquainted with the method, it is inconceivable how much it improves the fragrancy, fineness, transparency, and gratefully quick flavour of the beverage, and probably too it adds to its wholesomeness.

209. *To preserve Eggs for a Length of Time.*

Put an egg for one minute in water just about to boil (it will not in that time be hard), and it will afterwards keep well for a month. Steep one a little while in sweet oil, and it will keep for half a year.

210. *To clean Marble.*

Take a bullock's gall, a gill of soap lees, half a gill of turpentine, and make it into a paste with pipe clay; then apply it to the marble, and let it dry a day or two; then rub it off; and, if not clean, apply it a second or third time until it is clean.

211. *To clean Alabaster or Marble.*

Beat pumice stones to an impalpable powder, and mix it up with verjuice; let it stand for two hours, then dip into it a sponge, and rub the marble or alabaster, wash it with a linen cloth and fresh water, and dry it with clean linen rags.

212. *To clear Iron from Rust.*

Pound some glass to fine powder; and having nailed some strong linen or woollen cloth upon a board, lay upon it a strong coat of gum-water, and sift thereon some of your powdered glass, and let it dry; repeat this operation three times, and when the last covering of powdered glass is dry, you may easily rub off the rust from iron utensils, with the cloth thus prepared.

213. *To take the Smell of Paint from Rooms.*

Let three or four broad tubs, each containing about eight gallons of water, and one ounce of vitriolic acid, be placed in the new painted room, near the wainscot; this water will absorb and retain the effluvia from the paint in three days, but the water should be renewed each day during that time.

214. *To fatten Poultry.*

Poultry should be fattened in coops, and kept very clean. They should be furnished with gravel, but with no water. Their only food, barley-meal, mixed so thin with water as to serve them for drink. Their thirst makes them eat more than they would, in order to extract the water that is among the food. This should not be put in troughs, but laid upon a board, which should be clean washed every time fresh food is put upon it. It is foul and heated water which is the sole cause of the pip.

215. *Method of expeditiously fattening Chickens.*

Take, for that purpose, a quantity of rice, and grind or pound it into a fine flour; mix sufficient for present use with milk and a little coarse sugar; stir the whole well over the fire, till it makes a thick paste; and feed the chickens, in the day-time only, by putting as much of it as they can eat, but no more, into the troughs belonging to their coops.

It must be eaten while warm; and, if they have also beer to drink, they will soon grow very fat. A mixture of oatmeal and treacle, combined till it crumbles, is said to form a food for chickens, of which they are so fond, and with which they thrive so rapidly, that at the end of two months they become as large as the generality of full grown fowls fed in the common way.

216. *Swedish Method of raising Turkeys.*

As soon as the young turkeys leave the shell, they are made to swallow one or two pepper-corns, and returned to their mother. They are afterwards fed with crums of bread and milk, and with common dock leaves, chopped small, and mixed with fresh buttermilk, and kept in a warm place or sun-shine, and guarded from the rain or from running among nettles.

Nothing, however, is more useful for them than the common garden pepper-cress, or cut-leaved cress. They are very fond of it; and supplied with as much of it as they will eat, they will not be delicate in their other food. Perhaps cresses might be equally useful for young pheasants, numbers of which are reared by the poor cottagers in Buckinghamshire, for the supply of London. At least the pheasant is a bird that haunts the woods, and lives on the same fare as the turkey in its wild state.

Ant eggs are the best food for them, whenever they can be procured.

217. *To fatten Turkeys as they do in Norfolk.*

The quality and size of the Norfolk turkeys are superior to those of any other part of the kingdom. They are fed almost entirely with buck-wheat, which, perhaps, may account for their excellence, and are bred by almost every little farmer in the county. When young, they demand perpetual attention, and must be fed with alum, curds, and chopped onions; and the expense attending their management and food can be compensated only where broods are tolerably successful, and the prices high. When young, they should have a large proportion of common pepper-cress mixed in their food, or be allowed to pick in a bed of it.

218. *Method of fattening Geese and Ducks.*

Geese, the more quiet and undisturbed they are kept, the faster and better they fatten.

I shall begin with what are usually called green geese:—Let these young geese be put in a place that is almost dark, and be fed with some ground malt mixed up with milk, and they will very soon, and at very little expense, be fit to kill: the method has often been tried, and the flesh has been found to eat very delicate.

I sometimes fat them in a still cheaper way, especially when milk is scarce: I mix up some barley-meal, pretty thick, with water, which they constantly have by them, to eat as they choose; in another part of the shed, where they are kept, is a pan with some boiled oats, and water, for them to resort to when they are inclined to change their food. This variety is agreeable to them, and they thrive apace, being so fattened at less expense than in any other manner I know of.

The manner in which I manage my Michaelmas, or stubble geese, is not very different from that above described. Immediately after harvest I turn them on the wheat eddishes, where they pick up flesh apace: but when I take them up to fatten I feed them with ground malt, mixed up with water, and give them with it boiled oats, boiled malt, or boiled barley, and sometimes, for change, even boiled wheat and water. Thus managed, they grow fatter and acquire a finer flavour than would at first be imagined, and greatly superior to those in the London markets.

I fatten my ducks in the same manner, only allowing them a larger pan to dabble in, which answers extremely well.

I keep a very considerable number of ducks for breeders, having near my house the convenience of several ponds, and I annually set in the spring a great number of duck eggs under hens; it is therefore natural that I should choose such a breed as will lay me a large store of eggs, and I have always found such as have their bills turn up rather more than ordinary to answer this purpose best.

219. *To purify Lemon Juice.*

Add one ounce of pulverised, well burnt charcoal, to a quart of lemon juice; after standing twelve hours, filter the juice through white blotting paper; it will keep good several years in a cellar, in a bottle, well corked; a thick crust will form beneath the cork, and the mucilage will fall to the bottom.

220. *To take Mildew out of Linen.*

Take soap, and rub it well; then scrape some fine chalk, and rub that also in the linen; lay it on the grass; as it dries wet it a little, and it will come out at twice doing.

221. *To make Verjuice.*

The acid of the juice of the crab or wilding is called by the country people verjuice, and is much used in recent sprains, and in other cases, as an astringent or repellent. With a proper addition of sugar, it is probable that a very grateful liquor might be made of this juice, but little inferior to old hock.

222. *Method of making Vinegar.*

To every gallon of water put a pound of coarse Lisbon sugar; let the mixture be boiled, and skimmed so long as any scum arises. Then let it be poured into proper vessels; and when it is as cool as beer when worked, let a warm toast, rubbed over with yeast, be put to it. Let it work about twenty-four hours, and then put it into an iron-hooped cask, and fixed either near a constant fire, or where the summer sun shines the greater part of the day; in this situation it should not be closely stopped up, but a tile, or something similar, laid on the bung-hole, to keep out the dust and insects. At the end of about three months (sometimes less) it will be clear, and fit for use, and may be bottled off. The longer it is kept after it is bottled the better it will be. If the vessel containing the liquor is to be exposed to the sun's heat, the best time to begin making it is in April.

223. *To strengthen Vinegar.*

Suffer it to be repeatedly frozen, and separate the upper cake of ice or water from it.

224. *Balsamic and Anti-putrid Vinegar.*

Acetic acid may be mixed with aromatics, as in Henry's thieves vinegar, in a quantity sufficient for a small smelling-bottle, at no great expense. But it is the acetic acid which is useful, and not the aromatics, which are added for the pleasure of the perfume. Acetous acid or common vinegar, with or without aromatics, has little or no anti-putrid quality.

225. *Gooseberry Vinegar.*

Take the gooseberries, when full ripe, stamp them small; to every quart put three quarts of water, stir them well together; let it stand twenty-four hours, then strain it through a canvas bag.

To every gallon of liquor add one pound of brown sugar, and stir them well together before you barrel your liquor.

The old bright yellow English gooseberries are the best.

226. *To make Primrose Vinegar.*

To fifteen quarts of water put six pounds of brown sugar, let it boil ten minutes, and take off the scum; pour on it half a peck of primroses; before it is quite cold put in a little fresh yeast, and let it work in a warm place all night; put it in a barrel in the kitchen, and when done working close the barrel, still keeping it in a warm place.

227. *To purify Water for domestic and other Purposes.*

This method is extremely simple, and consists in placing horizontally, in the midst of a common water butt, a false bottom, perforated with a great number of small holes. The butt being thus divided into two equal parts, the upper is filled with pieces of charcoal, which must be neither too large nor too small, thoroughly burned, light, and well washed. Immediately under the cock, by which the water enters the butt, must be placed a small hollow cylinder, being merely to break the force of the water, and prevent it from falling upon the charcoal with such violence as to detach from it any particles of dirt, and wash them through into the lower receptacle; it is of little consequence of what material it is made. M. Siauve thinks that this contrivance might be made subservient to the interests of agriculture as well as domestic economy; and that it would be highly advantageous to provide water thus filtered for the cattle, during the whole of the dog-days, and particularly when the ponds and streams are infected by the rotting of hemp and flax.

Remark.—A very good filtre may be made of charcoal, but it is comparatively expensive; and there is a patent for the only way in which the filtre can be made to last. In the above receipt, if the charcoal is not in very fine powder, it will have little effect in purifying the water; if it be, the charcoal will very soon choke from the quantity of mud deposited in it by the water, and the frequent renewals of the charcoal, which would be necessary from the choking, would be found expensive. The contrivance could only be useful as a temporary means of ascertaining the power of the charcoal on the particular kind of water, with a view afterwards to procure a proper filtre.

228. *To purify Water for Drinking.*

Filtre river water through a sponge, more or less compressed, instead of stone or sand, by which the water is not only rendered more clear, but wholesome; for sand is insensibly dissolved by the water, so that in four or five years it will have lost a fifth part of its weight. Powder of charcoal should be added to the sponge when the water is foul, or fetid. Those who examine the large quantity of terrene matter on the inside of tea-kettles will be convinced all water should be boiled before drunk, if they wish to avoid being afflicted with gravel and stone, &c. &c.

229. *To purify the muddy Water of Rivers or Pits.*

Make a number of holes in the bottom of a deep tub; lay some clean gravel thereon, and above this some clean sand; sink this tub in the river or pit, so that only a few inches of the tub will be above the surface of the water; the river or pit water will filter through the sand, and rise clear through it to the level of the water on the outside, and will be pure and limpid.

230. *Method of making putrid Water sweet in a Night's Time.*

Four large spoonfuls of unslacked lime put into a puncheon of ninety gallons of putrid water, at sea, will, in one night, make it as clear and sweet as the best spring water just drawn: but unless the water is afterwards ventilated sufficiently to carbonize the lime, it will be a lime water. Three ounces of pure unslacked lime should saturate ninety gallons of water.

231. *To prevent the Freezing of Water in Pipes in the Winter Time.*

By tying up the ball-cock, during the frost, the freezing of pipes will often be prevented; in fact, it will always be prevented where the main pipe is higher than the cistern or other reservoir, and the pipe is laid in a regular inclination from one to the other, for then no water can remain in the pipe; or if the main is lower than the cistern, and the pipe regularly inclines, upon the supply's ceasing, the pipe will immediately exhaust itself into the main. Where water is in the pipes, if each cock is left a little dripping, this circulation of the water will frequently prevent the pipes from being frozen.

232. *Easy Method of purifying Water.*

Take a common garden pot, in the midst of which place a piece of wicker work; on this spread a layer of charcoal of four or five inches in thickness, and above the charcoal a quantity of sand. The surface of the sand is to be covered with paper pierced full of holes, to prevent the water from making channels in it. This filter is to be renewed occasionally. By this process, which is at once simple and economical, every person is enabled to procure pure limpid water at a very trifling expense.

233. *To purify River or any other muddy Water.*

Dissolve half an ounce of alum in a pint of warm water, and stirring it about in a puncheon of water just taken from any river, all the impurities will soon settle to the bottom, and in a day or two it will become as clear as the finest spring water.

234. *To make Sea-Water fit for washing Linen at Sea.*

Soda put into sea-water renders it turbid; the lime and magnesia fall to the bottom. To make sea-water fit for washing linen at sea, as much soda must be put in it, as not only to effect a complete precipitation of these earths, but to render the sea-water sufficiently lixivial or alkaline. Soda should always be taken to sea for this purpose.

235. *To make a Vessel for filtering Water.*

Where water is to be filtered in large quantities, as for the purposes of a family, a particular kind of soft, spongy stones, called filtering-stones, are employed. These, however, though the water percolates through them very fine, and in sufficient quantity at first, are liable to be obstructed in the same manner as paper, and are then rendered useless. A better method seems to be, to have a wooden vessel lined with lead, three or four feet wide at top, but tapering so as to end in a small orifice at the bottom. The under part of the vessel is to be filled with very rough sand, or gravel, well freed from earth by washing; over this pretty fine sand may be laid, to the depth of twelve or fourteen inches, but which must likewise be well freed from earthy particles.

The vessel may then be filled up to the top with water, pouring it gently at first, lest the sand should be too much displaced. It will soon filter through the sand, and run out at the lower orifice exceedingly transparent, and likewise in very considerable quantities. When the upper part of the sand begins to be stopped up, so as not to allow a free passage to the water, it may occasionally be taken off, and the earthy matter washed from it, when it will be equally serviceable as before.

236. *The Turkish Method of filtering Water by Ascension.*

They make two wells, from five to ten feet, or any depth, at a small distance, which have a communication at the bottom. The separation must be of clay well beaten, or of other substances impervious to water. The two wells are then filled with sand and gravel. The opening of that into which the water to be filtered is to run must be somewhat higher than that into which the water is to ascend; and this must not have sand quite up to its brim, that there may be room for the filtered water; or it may, by a spout, run into a vessel placed for that purpose. The greater the difference is between the height of the two wells, the faster the water will filter; but the less it is, the better, provided a sufficient quantity of water be supplied by it.

This may be practised in a cask, tub, jar, or other vessel. The water may be conveyed to the bottom by a pipe, the lower end having a sponge in it, or the pipe may be filled with coarse sand.

It is evident that all such particles, which by their gravity are carried down in filtration by descent, will not rise with the water in filtration by ascension. This might be practised on board ships at little expense.

237. *To preserve Lemon Juice during a long Voyage.*

Care must be taken to squeeze only sound fruit, as a tainted lemon will endanger the spoiling of the whole: the expressed juice must be depurated, by standing a few days, adding one ounce of cream of tartar to every quart of lemon juice; filter it pretty clear; then it is to be put into small bottles, none of them containing more than a pint of juice; in the neck of the bottle a little of the best oil of olives is to be poured, and the cork well sealed over.

238. *Method of preserving Grapes.*

Take a cask or barrel, inaccessible to the external air, and put into it a layer of bran, dried in an oven, or of ashes well dried and sifted. Upon this, place a layer of grapes well cleaned, and gathered in the afternoon of a dry day, before they are perfectly ripe. Proceed thus with alternate layers of bran and grapes, till the barrel is full, taking care that the grapes do not touch each other, and to let the last layer be of bran; then close the barrel, so that the air may not be able to penetrate, which is an essential point. Grapes, thus packed, will keep nine or even twelve months. To restore them to their freshness, cut the end of the stalk of each bunch of grapes, and put that of white grapes into white wine, and that of the black grapes into red wine, as you would put flowers into water, to revive or keep them fresh.

239. *Singular and simple Manner of preserving Apples from the Effects of Frost, in North America.*

Apples being produced most abundantly in North America, and forming an article of chief necessity in almost every family, the greatest care is constantly taken to protect them from frost at the earliest commencement of the winter season; it being well known, that apples, if left unprotected, are inevitably destroyed by the first frost which occurs. This desirable object, during their long and severe winters, is said to be completely effected, by only throwing over them a thin linen cloth before the approach of frost, when the fruit beneath is never injured, how severe soever the winter may happen to prove. Yet apples are there usually kept in a small apartment immediately beneath the roof of the house, particularly appropriated to that purpose, and where there is never any fire. This is a fact so well known, that the Americans are astonished it should appear at all wonderful, and they have some reason to be so, when it is considered that, throughout Germany, the same method of preserving fruit is universally practised; from whence, probably, it made its way to North America. It appears, that linen cloth only is used for this purpose: woollen cloth, in particular, having been experienced to prove ineffectual. There seems abundant reason to believe, that even potatoes might be protected from frost by some such simple expedient.

Remark.—This article, as well as the preceding, (to which the principle seems very analogous), merits high consideration; and for the same important reason, its capability of conducing to the universal benefit of mankind, and the numerous animals under our protection.

240. *To keep Oranges and Lemons.*

Take small sand and make it very dry; after it is cold put a quantity of it into a clean vessel; then take your oranges, and set a laying of them in the same, the stalk-end downwards, so that they do not touch each other, and strew in some of the sand, as much as will cover them two inches deep; then set your vessel in a cold place, and you will find your fruit in high preservation at the end of several months.

241. *Another Method.*

Freeze the oranges, and keep them in an ice-house. When to be used, put them into a vessel of cold water till they are thawed. By this means they may be had in perfection at any season of the year.

242. *New Method of preserving Potatoes.*

The following method of preserving potatoes was communicated by Mr. Millington, to the Society for Bettering the Condition of the Poor:

I caused (says this gentleman) three pounds and a half of potatoes to be peeled and rasped; then put in a coarse cloth, between two boards, in a napkin press, and pressed them into a dry cake, hardly so thick as a thin-cheese. They were then placed on a shelf to dry. There was about a quart of juice expressed from the potatoes. To this was added about a like quantity of water, and in about an hour it deposited more than sixty grains of white starch or flour, fit to make pastry. A cake of this was prepared and sent to the Society. In bulk it occupied only a sixth of the compass of the potatoes: in weight it had lost about two-thirds by the process: but the cake, when dressed with steam or otherwise, will produce nearly the same quantity of food as three pounds and a half of potatoes, properly dressed for table, would do. Some potatoes. quite frozen, have been prepared this way, and the cake was perfectly sweet: whereas some of the same parcel that were left, and not pressed, were rotten and spoiled in a few days.

243. *To preserve Potatoes from the Frost.*

If you have not a convenient store-place for them, dig a trench three or four feet deep, into which they are to be laid as they are taken up, and then covered with the earth taken out of the trench, raised up in the middle like the roof of a house, and covered with straw, to carry off the rain. They will be thus preserved from the frost, and can be taken up as they are wanted.

244. *Method of recovering Frost-bitten Fruits and Vegetables.*

This may be done by putting such fruits and roots, as pears, apples, potatoes, &c. as have been penetrated by frost, into cold water, when a thaw approaches, and letting them remain in the water some time, till by the plumpness and fairness of the fruit and roots it appears that the particles of the frost are extracted. This method has been often tried and found to answer, but at the same time the utmost care should be taken to preserve these things from the frost, as it is better to keep off an enemy than to be at the trouble of driving him out.

244. *To preserve Apples.*

Dry a glazed jar perfectly well, put a few pebbles in the bottom; fill the jar with apples, and cover it with a bit of wood made to fit exactly; and over that, put a little fresh mortar. The pebbles attract the damp of the apples. The mortar draws the air from the jar, and leaves the apples free from its pressure, which, together with the principle of putrefaction which the air contains, are the causes of decay. Apples, kept thus, have been found quite sound, fair, and juicy, in July.

245. *A Method of preserving Fruit fresh all the Year.*

Take of saltpetre one pound, of bole-armeniac two pounds, of common sand, well freed from its earthy parts, four pounds, and mix all together. After this, let the fruit be gathered with the hand before it be thorough ripe, each fruit being handled only by the stalk; lay them regularly, and in order, in a large wide-mouthed glass vessel; then cover the top of the glass with an oiled paper, and carrying it into a dry place, set it in a box filled all round, to about four inches thickness, with the aforesaid preparations, so that no part of the glass vessel shall appear, being in a manner buried in the prepared nitre; and at the end of a year such fruits may be taken out, as beautiful as when they were first put in.

247. *To preserve Hazel Nuts in great Perfection for many Months.*

Hazel nuts may be kept a long time in full kernel by burying them in earthen pots, well closed, a foot or two in the ground. They keep best in gravelly or sandy places.

218. *To preserve Aromatics and other Herbs.*

The boxes and drawers in which vegetable matters are kept should not impart to them any smell or taste; and more certainly to avoid this, they should be lined with paper. Such as are volatile, of a delicate texture, or subject to suffer from insects, must be kept in well covered glasses. Fruits and oily seeds, which are apt to become rancid, must be kept in a cool and dry, but by no means in a warm or moist place.

249. *To preserve Grapes till Winter.*

About September, when grapes are nearly ripe, procure some bags made either of crape, muslin, gauze, or white paper.

Select some of the best bunches, and, with a pair of sharp narrow-pointed scissars, cut off all small unripe, rotten, mouldy, or imperfect grapes, especially those eaten by flies or wasps.

250. *Substitute for Soap, easily prepared in small Quantities, by private Families in the Country.*

Collect, before the time of seeding, thistles, nettles, fern, and such other weeds as usually infest the borders of high roads and hedges, and burn them in a large heap, gradually, till the whole are consumed, and carefully preserve the ashes in a dry place, ready to make the ley wanted for the purpose of making a substitute for soap.

The requisite materials and utensils should be prepared, which are but few in number. They consist, 1st, Of a small tub of white wood, nine inches in width, and as many in height. This tub should be perforated near the bottom; its use is for mixing the leys. (Were it made of oak it would colour the leys.) 2d, A small copper basin, with a round bottom, a foot in diameter, and seven or eight inches in depth; or where this cannot be procured, an iron pot, or earthen vessel, that can bear the fire, may be used. This vessel is intended for boiling the mixture. 3d, For this small manufacture are finally required a skimmer, a spatula of white wood, and two earthen pans.

The materials necessary are, 1, some good ashes; 2, lime, and 3, oil, tallow, or kitchen fat.

251] *Method of preparing the Leys.*

Take three pounds of ashes and one pound of lime. First, moisten the lime with a small quantity of water, in order to slake it; and after it has completely crumbled down, mix with it the ashes, and put this mixture into the tub, having previously spread a piece of canvas at the bottom; carefully close the hole at the bottom of the tub; after which pour upon the materials a quantity of water sufficient to soak it well through, and rise above it in the vessel, to the height of about three finger breadths. Then stir it well with a stick, and suffer it to stand for some hours; then open the hole, in order to let the ley run off, which is collected and kept by itself. This is the first ley; then again put fresh water in the tub, stir the materials with a stick, let them stand for some hours, and then draw off the second ley, which is also kept separate; the third ley is obtained in the same manner, by pouring fresh water upon the remainder of the ashes, which will now have been sufficiently exhausted of its saline particles

Take equal quantities of the first ley, and of kitchen fat, tallow, or oil, and melt them together in your copper basin, over a gentle fire, till they are well incorporated, by constantly agitating them with your wooden spatula. When the ley and grease are well united, you may add more ley of the second quality, and digest them for some time with a gentle heat, till the mixture is completed, taking care to stir it well all the time; then pour it into your earthen pans to cool and preserve for use. A few trials will enable you to make it in a perfect manner; and a little of this composition will be found to answer all the purposes of soap for family use. The surplus ley of the stronger kinds may be preserved for future use, and the weaker ley will serve to put upon fresh ashes on a future occasion; or a little of any of these leys will form a useful steep, with a considerable quantity of warm water, for the dirty plain linen intended to be washed, but will be too strong for printed calicoes or dyed articles.

252. *To make Jamaica Vegetable Soap.*

This soap is prepared from the great American aloe, in the following manner:—The large succulent leaves being cut, are passed between the rollers of a mill, with their point foremost, and the juice being conducted into wide, shallow receivers, through a coarse cloth or strainer, lies exposed to a hot sun, till it is reduced to a thick consistence. It is then made up into balls, with ley ashes, to prevent it from sticking to the fingers; after which it may be kept for years, and serve for use, as well as Castile soap, in washing linen; but it has the superior quality of mixing and forming a lather with salt water as well as fresh.

Another method of preparing this soap is, by cutting the leaves in pieces, pounding them in a large wooden mortar, and then expressing the juice, which is brought afterwards to a consistence, either by the sun or by boiling. One gallon of this juice, thus prepared, will yield about one pound avoirdupois, of a soft extract. It will answer prepared in either of these ways, provided the juice, before exposure to the sun or fire, be very carefully strained from the bruised fibres, and other membrane of the leaves. The extract must never be compounded with tallow, or any other unctuous materials, for such mixtures destroy its effect.

The leaves are used for scouring pewter and other kitchen utensils, and also for floors.

253. *To make Lady Derby's Soap.*

Two ounces of bitter almonds blanched, one ounce and a quarter of tincture of benjamin, one pound of good plain white soap, and one piece of camphor the size of a walnut. The almonds and camphor are to be beaten in a mortar until they are completely mixed; then work up with them the tincture of benjamin. The mixture being perfectly made, work the soap into it in the same manner. If the smell is too powerful of the camphor and tincture of benjamin, melt the soap by the fire, and the perfume will go off. This soap has been tried by many persons of distinction, is excellent in its qualities for cleansing the skin, and will be found greatly to assist the complexion, the ingredients being perfectly safe, and free from those pernicious properties that are mostly incorporated with other soap.

254. *To make British Herb Tea.*

Take of hawthorn leaves, dried, two parts; sage and balm one part; mix these well together, and they will make an excellent and pleasant sanative tea, particularly wholesome to nervous people.

255. *British Substitute for Foreign Tea.*

Betony, if gathered when just going to flower, has the taste of tea, and all the good qualities of it, without the bad ones, and, moreover, it cures inveterate head-aches.

256. *Another.*

Make an infusion of ground ivy, which is very agreeable in flavour, especially if you add to it a drop or two of lemon-juice. It is reported by many, that the habitual use of this herb will cure the most obstinate consumption. It is certainly a good pectoral, and when green is fragrant: if mixed with a few flowers of lavender, it makes a most agreeable liquor for summer use; and, if gathered at a proper time, has an agreeable taste to many, but wholesome to all, even when dry.

257. *Another.*

Balm, or lemon-balm alone, or with sage, is much recommended, with a few flowers of lavender; it has a most delicious flavour and taste, but is most agreeable when green.

258. *The Virtues of Sage.*

This valuable herb was held in such high esteem among the ancients, that they have left us a Latin verse, which signifies,

> "*Why should a man die whilst he has sage in his garden?*"

It is reckoned admirable as a cordial, and to sweeten and cleanse the blood. It is good in nervous cases, and is given in fevers, with a view to promote perspiration. With the addition of a little lemon-juice, it is very grateful and cooling; some choose to take it dry, alleging that the surface of the leaves of green sage abound with animalcules, which are very visible through a microscope; and so there are in many articles of common food; but we may be assured, even if this is the case, that as they are nourished with the sage, they are of no harm, and, at all events, a little hot water will destroy them.

259. *To prevent excessive Thirst in Cases of Emergency at Sea, in the Summer Time.*

When thirst is excessive, as is often the case in summer time during long voyages, avoid, *if possible, even in times of the greatest necessity,* the drinking of salt water to allay the thirst, but rather keep thinly clad, and frequently dip in the sea, which will appease both hunger and thirst for a long time, and prevent the disagreeable sensation of swallowing salt water.

260. *To preserve Eggs sound for the Space of Two Years.*

For the following process, for keeping and preserving eggs perfectly sound, a patent was granted in February, 1791, to Mr. Jayne, of Sheffield, Yorkshire:

Put into a tub or vessel one bushel, Winchester measure, of quicklime, thirty-two ounces of salt, eight ounces of cream of tartar, and mix the same together with as much water as will reduce the composition, or mixture, to that consistence, that it will cause an egg put into it to swim with its top just above the liquid: then put and keep the eggs therein, which will preserve them perfectly sound for the space of two years at the least.

This method is not the worse for being simple, and the still simpler one of merely keeping eggs in salt is known by many good housewives to preserve eggs quite sound for a considerable time.

261. *Manner of preserving Eggs perfectly fresh, for Twelve Months.*

Having provided small casks, like oyster barrels, fill them with fresh laid eggs; then pour into each cask, the head of which is supposed to have been first taken out, as much cold thick lime-water as will fill up all the void spaces between the eggs, and likewise completely cover them. The thicker the lime-water is the better, provided it will fill up all the interstices, and the liquid at the top of the cask; this done, lay on the head of the cask lightly. No farther care is necessary than merely to prevent the lime from growing too hard, by adding, occasionally, a little common water on the surface, should it seem so disposed, and keeping the casks from heat and frost. The eggs, when taken out for use, are to be washed from the adhering lime with a little cold water, when they will have both the appearance and qualities of fresh laid eggs, the lime preserving them from shrinking or putridity.

262. Another Method.

The most simple and easy mode of preserving eggs is to rub the outside of the shell, as soon as gathered from the nest, with a little butter, or any other grease that is not fetid. By filling up the pores of the shell, the evaporation of the liquid part of the egg is prevented; and either by that means, or by excluding the external air, which Fourcroy supposes destroys the milkiness which most people are fond of in new-laid eggs, that milkiness will be preserved for months, as perfect as when the egg was taken from the nest.

263. Cream preserved in long Voyages.

Mix with a quantity of fresh rich cream half its weight of white sugar in powder; stir the whole well together, and preserve it in bottles well corked. In this state it is ready to mix with tea or coffee, and has continued in good condition during a voyage to America.

264. To make artificial Asses' Milk.

Two ounces of pearl barley, two ounces of hartshorn shavings, three ounces of Eringo root candied, nine garden snails; boil these in six quarts of spring water till it comes to three; put two spoonsful of cow's milk into half a pint of the above, and drink it lukewarm about half an hour before you rise in the morning.

N. B.—You may leave out the snails if you do not like them, but it is best to use them.

265. *To free Molasses from their sharp Taste, and to render them fit to be used instead of Sugar.*

Take twenty-four pounds of molasses, twenty-four pounds of water, and six pounds of charcoal, coarsely pulverized: mix them in a kettle, and boil the whole over a slow wood fire. When the mixture has boiled half an hour, pour it into a flat vessel, in order that the charcoal may subside to the bottom: then pour off the liquid, and place it over the fire once more, that the superfluous water may evaporate, and the molasses be brought to their former consistence. Twenty-four pounds of molasses will produce twenty-four pounds of syrup.

This method has been employed on a large scale, with the happiest effects; the molasses become sensibly milder, and can be employed in many articles of food; though in dishes, where milk is used, or for cordials mixed with spices, sugar is to be preferred.

266. *To destroy Bugs.*

Take of the highest rectified spirits of wine, (viz. lamp spirits) that will burn all away dry, and leave not the least moisture behind, half a pint: new distilled oil, or spirits, of turpentine, half a pint; mix them together, and break into it, in small bits, half an ounce of camphor; which will dissolve in a few minutes; shake them well together, and with a sponge, or a brush, dipt in some of it, wet very well the bed or furniture wherein these vermin harbour and breed, and it will infallibly kill and destroy both them and their nits, although they swarm ever so much. But then the bed or furniture must be well and thoroughly wet with it (the dust upon them being first brushed and shook off), by which means it will neither stain, soil, nor in the least hurt the finest silk or damask bed that is. The quantity here ordered of this curious neat white mixture, which costs about a shilling, will rid any one bed whatever, though it swarms with bugs. Do but touch a live bug with a drop of it, and you will find it die immediately; if any should happen to appear, after once using, it will only be for want of well wetting the lacing, &c. of the bed, or the foldings of the linings or curtains, near the rings, or the joints, or holes in and about the bed, or head-board, wherein the bugs or nits nestle and breed, and then their being well wet altogether again, with more of the same mixture, which dries in as fast as you use it, pouring some of it into the joints or holes where the sponge or brush cannot reach, will never fail absolutely to destroy them all. Some beds, that have much wood-work, can hardly be thoroughly cleaned without being first taken down; but others that can be drawn out, or that you can get well behind to be done as it should be, may.

Note.—The smell this mixture occasions will be gone in two or three days, which is yet very wholesome, and to many people agreeable. You must remember always to shake the liquor together very well whenever you use it, which must be in the daytime, not by candlelight, lest the subtlety of the mixture should catch the flame as you are using it, and occasion damage.

267. *Another Method.*

The risk of bugs in a large city is inevitable; the clothes-boxes of servants, the going to a public place or in a public carriage, or the insect being blown against the apparel while walking the streets, may introduce it into the house. But to cleanly people, whose beds are examined, and the joints oiled with pure sweet oil three or four times a year, they cannot become troublesome; except what no person can be secure against, they should succeed in the occupation of a house, a filthy, though perhaps a very fine predecessor, who has permitted the animal to entrench itself in the walls and the ceiling.

In such a situation the chimney and the windows were pasted up air-tight, and after a mixture of powder of brimstone and saltpetre (as used by the makers of vitriolic acid), was set fire to with proper precaution, in an earthen pan and sand, the doors were shut, and the joints pasted up. The remedy, and in such a case it was thought proper to fumigate all the rooms, was effectual. Coloured hangings, &c. which the gas might hurt, were removed: to the bedding and to wood it does no injury.

There is however some difficulty in forming such a quantity of vitriolic acid gas, which is heavy and not very expansible, as completely to penetrate the crevices of the room in which the insects harbour. As the oxymuriatic gas is at least as strong a poison to animals as the vitriolic, there is no reason to anticipate that it is not equally so to the bug, and it is much more easily applied and more expansible. It is likely to answer, but there has been no similar opportunity of trying it. Coloured hangings should be removed, as though that gas will not affect completely oxidated metallic dyes, it will bleach or whiten the vegetable colours. After some hours' fumigation, the doors and windows should be thrown open, without breathing, or as little as possible, the air of the rooms. The remaining gas will then be dissipated more quickly than the vitriolic.

268. *Plate Powder.*

In most of the articles sold as plate powders, under a variety of names, there is an injurious mixture of quicksilver, which is said sometimes so far to penetrate and render silver brittle, that it will even break with a fall. Whitening, properly purified from sand, applied wet, and rubbed till dry, is one of the easiest, safest, and certainly the cheapest of all plate powders: jewellers and silversmiths, for small articles, seldom use any thing else. If, however, the plate be boiled a little in water, with an ounce of calcined hartshorn in powder to about three pints of water, then drained over the vessel in which it was boiled, and afterwards dried by the fire, while some soft linen rags are boiled in the liquid till they have wholly imbibed it, these rags will, when dry, not only assist to clean the plate, which must afterwards be rubbed bright with leather, but also serve admirably for cleaning brass locks, finger-plates, &c.

269. *Usefulness of Clivers, or Goose Grass.*

Young geese are very fond of the branches of this plant; the seeds may be used instead of coffee. The expressed juice of the stem and leaves, taken to the amount of four ounces night and morning, is very efficacious in removing many of those cutaneous eruptions, which are called, though improperly, scorbutic: but it must be continued for several weeks.

270. *Important Uses of the Leaves of the Vine.*

From experiments made by Sir James Hall, it has been found that the leaves of the vine, dried in the shade, make an excellent and extremely wholesome tea, though differing in taste and flavour from that commonly used. Besides, also being admirably calculated for making vinegar, the prunings of the vine, on being bruised and put into a vat or mashing tub, and boiling water poured on them, in the same way as is done with malt, will produce a liquor of a fine vinous quality; which, being fermented, forms a substitute for beer; and which, on being distilled, produces a good spirit of the nature of brandy.

271. *Valuable Properties of Cherry-Tree Gum.*

The gum that exudes from the trunk and branches of the cherry-tree is equal to gum-arabic. Hasselquist relates that, during a siege, more than an hundred men were kept alive for two months nearly, without any other sustenance than a little of this gum taken into the mouth sometimes, and suffered gradually to dissolve.

272. *Valuable Properties of the Helianthus Annuus, or Sun Flower.*

The seeds afford a good eatable oil; the stalks potash, when burned like those of Turkish corn. From the large quantity of pith in the stalks, paper may be made.

The young stalks are eaten at Frankfort on the Main, as greens; and the old are used as fire-wood.

273. *Fly Water.*

Most of the fly-waters, and other preparations commonly sold for the destruction of flies, are variously disguised poisons, dangerous and even fatal to the human species; such as solutions of mercury, arsenic, &c. mixed with honey or syrup. The following preparation, however, without endangering the lives of children, or other incautious persons, is not less fatal to flies than even a solution of arsenic. Dissolve two drachms of the extract of quassia in half a pint of boiling water; and adding a little sugar or syrup, pour the mixture on plates. To this enticing food the flies are extremely partial, and it never fails to destroy them.

274. *To make a wholesome Food of Cashew Nuts.*

Cashew nuts may be prepared as food, by blanching them with hot water to wash off the caustic oil, or roasting them in a pot like coffee; but care must be taken to avoid the smoke, which is very acrid. They may also be prepared by sticking them on a fork, and burning them at a candle. The oil of the shell is abundant, and thoroughly roasts the kernel within. The kernel of the fresh cashew nut is made into an emulsion, like almonds, and universally used in the West Indies.

275. *Curious small Cakes of Incense for perfuming Apartments.*

Take equal quantities of lignum rhodium, and anise, in powder, with a little powder of dried Seville orange-peel, and the same of gum benzoin, or benjamin, and beat all together in a marble mortar. Then, adding some gum dragon, or tragacanth, dissolved in rose-water; put in a little civet; beat the whole again together, make up this mixture into small cakes, and place them on paper to dry. One of these cakes being burnt in the largest apartment, will diffuse a most agreeable odour through the whole room.

276. *Essence of Soap for Shaving or Washing Hands.*

Take a pound and a half of fine white soap in thin slices, and add thereto two ounces of salt of tartar; mix them well together, and put this mixture into one quart of spirits of wine, in a bottle which will hold double the quantity of the ingredients; tie a bladder over the mouth of the bottle, and prick a pin through the bladder; set it to digest in a gentle heat, and shake the contents from time to time, taking care to take out the pin at such times to allow passage for the air from within; when the soap is dissolved, filter the liquor through paper, to free it from impurities; then scent it with a little bergamot or essence of lemon. It will have the appearance of fine oil, and a small quantity will lather with water like soap, and is much superior in use for washing or shaving.

277. *Composition for Shaving, without the Use of Razor, Soap, or Water.*

Mix one pint and a half of clear lime-water, two ounces of gum-arabic, half an ounce of insinglass, an eighth of an ounce of cochineal, a quarter of an ounce of turmeric-root (made into powder), an eighth of an ounce of salt of tartar, and an eighth of an ounce of cream of tartar, together: boil them for one hour at least (stirring up the mixture during the whole time of boiling, and be careful not to let it boil over), clear it through a sieve; then add two pounds and a half of pumice-stone, finely pulverized; mix the whole together with the hands, into one cake, by the assistance of the white of two eggs, well stirred up. Then divide the cake, so made, into twelve smaller cakes; dry them in the open air for three days; put them into an oven of moderate heat, for twenty-four hours, when they will be completely dry and fit for use. Apply them, with a gentle friction, to the beard, and they will produce the complete effect of shaving, by rubbing off the hair.

278. *Economical Mode of cutting Cauliflower.*

Instead of cutting off the whole head of a cauliflower, leave a part on, of the size of a gooseberry, and all the leaves: second, and even third heads will be formed, and thus they may be eaten for two or three months; when, at present, by cutting the head completely off, the bed of cauliflowers are gone in two or three weeks. They should be planted in good moist ground, and treated in the same manner as celery.

279. *Necessary Hints to those who use Copper Vessels for culinary Purposes.*

In domestic economy, the necessity of keeping copper vessels always clean is generally acknowledged; but it may not perhaps be so generally known, that fat and oily substances, and vegetable acids, do not attack copper while *hot;* and, therefore, that if no liquid be ever suffered to grow *cold* in copper vessels, those utensils may be used for every culinary purpose, with perfect safety.

Dr. Johnstone relates the shocking case of three men who died, after excruciating sufferings, in consequence of eating some victuals prepared in an unclean copper on board the Cyclops frigate.—Thirty-three other men became ill, and were put upon the sick-list, at the same time, and from the same cause.

Dr. Percival gives an account of a young lady who amused herself, while her hair was dressing, with eating samphire pickle impregnated with copper. She soon complained of pain in the stomach, and in five days vomiting commenced, which was incessant for two days. After this her stomach became prodigiously distended; and in nine days after eating the pickle, death relieved her from her sufferings.

280. *To prevent Lamps from being pernicious to Asthmatic Persons, or others, liable to Complaints of the Chest.*

Let a sponge, three or four inches in diameter, be moistened with pure water, and in that state be suspended by a string or wire, exactly over the flame of the lamp, at the distance of a few inches; this substance will absorb all the smoke emitted during the evening, or night, after which it should be rinsed in warm water, by which means it will be again rendered fit for use.

281. *To make economical Wicks for Lamps.*

When using a lamp with a flat wick, if you take a piece of clean cotton stocking, it will answer the purpose as well as the cotton wicks which are sold in the shops.

282. *Economical Use of Roots of Trees.*

In many parts of England and Scotland, trees are cut down above the surface of the earth, leaving the stumps an incumbrance to the ground, when they might be rooted up to advantage, if used in the following manner:—Dig out these but-ends, or stumps, and with a common augre, bore a hole in their centre, about six or nine inches deep, into which put a charge of powder of three or four inches; then fill up the space above it by an iron screw of the same dimensions, and put a quick match, of about eighteen inches long, into the hollow of the screw, and set fire thereto, and retire; the explosion will split the log or stump into various pieces, in one of which the screw will be found retained. Much valuable fuel may be thus obtained from the knotty roots of oaks, elms, yew trees, &c.

The screws, and other implements for this purpose, may be seen at the Society of Arts, in the Adelphi, or may be purchased from Mr. Knight, ironmonger, Foster-lane, Cheapside.

283. *Application of the Roots of Fir-Trees or Pines.*

The roots or but-ends of fir-trees, split in the manner above-mentioned, will yield a considerable quantity of pitch and tar, by the following management:—Make a hole in the earth, a few inches deep, on the side of a hill, in which lay a coat of clay, and therein pile the fir roots, split as above, and cut to the length of not more than three feet, upon bars of iron laid above the hole, and the logs piled up at the distance of half an inch from each other, and each row laid crossway of the other, to any height required; fire is to be set to the top of the pile, and as it consumes the wood, the pitch, tar, and resin, contained in the wood, melt and run from it into the hole below, and from thence by a small trench into a large hole, made several feet deep in the ground, to receive these products.

284. *Useful Properties of Red Spurge.*

Warts or corns anointed with the juice of this plant presently disappear. A drop of it put into the hollow of a decayed and aching tooth destroys the nerve, and consequently removes the pain. Some people rub it behind the ears that it may blister, and by that means give relief.

285. *To make Portable Balls for removing Spots from Clothes in general.*

Take fuller's-earth perfectly dried, so that it crumbles into powder, moisten it with the clear juice of lemons, and add a small quantity of pure pearl-ashes; then work and knead the whole carefully together, till it acquires the consistence of a thick elastic paste; form it into convenient small balls, and expose them to the heat of the sun, in which they ought to be completely dried. In this state they are fit for use in the manner following:—First, moisten the spot on your clothes with water, then rub it with the ball just described, and suffer it again to dry in the sun: after having washed the spot with pure water, it will entirely disappear.

286. *The Fumes of Brimstone useful in removing Spots or Stains in Linen, &c.*

If a red rose be held in the fumes of a brimstone-match, the colour will soon begin to change, and, at length, the flower will become white. By the same process, fruit-stains or iron-moulds may be removed from linen or cotton cloths, if the spots be previously moistened with water. With iron-moulds, weak muriatic acid is preferable, assisted by heat; as by laying the cloth on a tea-pot or kettle, filled with boiling water.

287. *To remove Spots of Grease from Paper.*

Take an equal quantity of roach alum, burnt, and flour of brimstone, finely powdered together; wet the paper a little, and put a small quantity of the powder on the place, rubbing it gently with your finger, and the spot will disappear.

288. *Substitute for Salt of Sorrel, for removing Ink Spots and Iron-moulds.*

Take six parts of crystals of tartar, in powder, three parts of alum, likewise pulverized, and use them in the same manner as salt of sorrel.

289. *Expeditious Method of taking out Stains from Scarlet, or Velvet of any other Colour.*

Take soap wort, bruise it, strain out its juices, and add to it a small quantity of black soap. Wash the stain with this liquor, suffering it to dry between whiles, and by this method the spots will in a day or two entirely disappear.

290. *To take Spots effectually out of Silk, Linen, or Woollen.*

Spirits of turpentine, twelve drops, and the same quantity of spirits of wine; grind these with an ounce of pipe-maker's clay, and rub the spots therewith. You are to wet the composition when you do either silk, linen, or woollen with it; let it remain till dry, then rub it off, and the spot or spots will disappear.

True spirits of salts, diluted with water, will remove iron-moulds from linen; and sal-ammoniac, with lime, will take out the stains of wine.

291. *To take the Stains of Grease from Woollen or Silk.*

Three ounces of spirits of wine, three ounces of French chalk, powdered, and five ounces of pipe-clay. Mix the above ingredients, and make them up in rolls about the length of a finger, and you will find a never-failing remedy for removing grease from woollen or silken goods.

N. B.—It is to be applied by rubbing on the spot either dry or wet, and afterwards brushing the place.

292. *Easy and safe Method of discharging Grease Spots from Woollen Cloths.*

Fullers' earth, or tobacco pipe-clay, being put wet on an oil spot, absorbs the oil as the water evaporates, and leaves the vegetable or animal fibres of cloth clean, on being beaten or brushed out. When the spot is occasioned by tallow or wax, it is necessary to heat the part cautiously by an iron or the fire, while the cloth is drying. In some kinds of goods, blotting paper, bran, or raw starch, may be used with advantage.

293. *To take out Spots of Ink.*

As soon as the accident happens, wet the place with juice of sorrel or lemon, or with vinegar, and the best hard white soap.

294. *To take Iron-moulds out of Linen.*

Hold the iron-mould on the cover of a tankard of boiling water, and rub on the spot a little juice of sorrel and a little salt, and when the cloth has thoroughly imbibed the juice, wash it in lee.

295. *To take out Spots on Silk.*

Rub the spots with spirit of turpentine; this spirit exhaling, carries off with it the oil that causes the spot.

296. *To take Wax out of Velvet of all Colours except Crimson.*

Take a crummy wheaten loaf, cut it in two, toast it before the fire, and, while very hot, apply it to the part spotted with wax. Then apply another piece of toasted bread hot as before, and continue this application till the wax is entirely taken out.

297. *Process for preparing nitrous Acid for extracting Stains, &c. from tanned Leather.*

Take half a pint of water, a quarter of a pint of nitrous acid, and half an ounce of salts of lemon. Put the water in a bottle, and add the nitrous acid to it, and afterwards the salts of lemon; when the heat which is caused by this mixture has subsided, add half a pint of skimmed milk; shake them occasionally for three or four days, and the liquor will be fit for use.

The Application.—With a brush and soft water clean the surface of the leather from all grease, dirt, &c. Next scrape on it a little Bath brick, or white free sand; add a little of the above liquor, and with a brush scour it well, repeating this process till the whole has been gone over; then, with a clean sponge and water, wash off what remains of the brick: leave the leather to dry gradually, and it will be of a light new colour. If it is wished to be darker, brush it with a hard brush a little before it is dry, and it will be of a rich brown tinge.

298. *To extract Grease Spots from Paper.*

Scrape finely some pipe-clay, the quantity of which may be easily determined on making the experiment: lay thereon the sheet or leaf, and cover the spot in like manner with the clay; cover the whole with a sheet of paper; then apply, for a few seconds, a heated ironing box, or any substitute adopted by laundresses. On using Indian rubber to remove the dust taken up by the grease, the paper will be found restored to its original degree of whiteness and opacity.

299. *To remove Spots of Grease from Books and Prints.*

After having gently warmed the paper stained with grease, wax, oil, or any fat body whatever, take out as much as possible of it, by means of blotting paper. Then dip a small brush in the essential oil of well-rectified spirit of turpentine, heated almost to an ebullition (for when cold it acts only very weakly), and draw it gently over both sides of the paper, which must be carefully kept warm. This operation must be repeated as many times as the quantity of the fat body imbibed by the paper, or the thickness of the paper may render necessary. When the greasy substance is entirely removed, recourse may be had to the following method to restore the paper to its former whiteness, which is not completely restored by the first process. Dip another brush into highly rectified spirit of wine, and draw it, in like manner, over the place which was stained, and particularly round the edges, to remove the border, that would still present a stain. By employing these means, with proper caution, the spot will totally disappear; the paper will resume its original whiteness; and if the process has been employed on a part written on with common ink, or printed with printer's ink, it will experience no alteration.

300. *To take Spots out of Cloths, Stuffs, Silk, Cotton, and Linen.*

Take two quarts of spring water, put in it a little fine white potash, about the quantity of a walnut, and a lemon cut in slices; mix these well together, and let it stand for twenty-four hours in the sun; then strain it off, and put the clear liquid up for use. This water takes out all spots, whether pitch, grease, or oil, as well in hats, as cloths and stuffs, silk or cotton, and linen. As soon as the spot is taken out, wash the place with fair water; for cloths of a deep colour, add to a spoonful of the mixture as much fair water as to weaken it.

Grease spots in cloth may be removed by using soap and water with a tooth or nail brush, and afterwards wiping off the lather with the wet corner of a towel. Essence of lemon, or pure spirit of turpentine, will remove pitch from cloth, &c.

In woollen cloth, an easier method is to scrape off the hard tallow with the edge of a tea-spoon, then rub the part briskly with a clean woollen rag, shifting the rag as the part becomes dirty; or, place some blotting paper on the spot, and press it with a hot iron, occasionally moving the paper.

301. *Remedy against the Effects of Ink, when just spilled.*

If the ink be spilled on a ruffle, or apron, &c. while you have it on, let one hold the spotted part between his two hands over a basin and rub it, while another pours water gradually from a decanter upon it, and let a whole pitcher-full be used if necessary; or if the ruffle, apron, &c. be at liberty, let it be dipped into a basin filled with water, and there squeezed and dipped in again, taking care to change the water in abundance every two or three squeezes. If the ink be spilled on a green table carpet, it may immediately be taken out with a tea-spoon so entirely, that scarcely any water at all shall be wanted afterwards, provided it was only that instant spilled, as the down of the cloth prevents the immediate soaking in of the ink, or of any other liquor (except oil); but if it have lain some time, be the time ever so long, provided the place be still wet, by pouring on it fresh clean water by little and little at a time, and gathering it up again each time with a spoon, pressing hard to squeeze it out of the cloth into the spoon, you will at last bring it to its natural colour, as if no such accident had happened.

302. *To discharge Grease from Leather.*

Apply the white of an egg to the spot, and dry it in the sun; or, mix two table-spoonsful of spirit of turpentine, half an ounce of mealy potatoes, and some of the best Durham mustard. Apply this mixture to the spot, and rub it off when dry; a little vinegar added renders it more efficacious.

303. *To make excellent Ink.*

Take a pound of the best Aleppo galls, half a pound of copperas, a quarter of a pound of gum-arabic, and a quarter of a pound of white sugar-candy. Bruise the galls, and beat the other ingredients fine; and infuse them all in three quarts of white wine, or rain-water. Let this mixture stand hot by the fire three or four days; and then put it on a slow fire so as to boil. Stir it frequently, and let it stand five or six hours, till one quarter of it be evaporated. When cold, strain it through a clean coarse piece of linen; bottle, and keep it for use.

The communicator of this good old receipt is convinced that much pains have been taken to ascertain the due proportions of the galls and copperas, for he has found that, on diminishing or increasing their relative quantities as above, the ink has always been pale; but this defect will sometimes happen, if the materials be not of the best kind. The quality of the paper written on will also make a difference in the colour of the ink.

The grand secret in preparing this ink, which will never change its colour, if properly attended to, though kept never so long, consists in the keeping it free from that mouldiness, which, in hot weather particularly, is apt to form upon the surface. The best way is to put it into a large glass bottle, with a ground stopper, and to shake it frequently. If, from a sudden heat of the weather, or neglect in shaking, the mouldiness should appear, either take it off, if in a very small quantity and easily removed, or otherwise let it accumulate till a thick crust be formed; and then, with a piece of wood, or wire crooked at the end, take it off all at once. It is very usual to put ink into an earthen or stone jar, which is suspended to some door that is frequently opened, in order that the ink may be shaken. But few doors are either regularly or sufficiently agitated for the purpose of preventing the formation of the destructive vegetable substance or mouldiness; and this, being once accumulated, and of course not seen in the jar, is shaken together with the ink, and the whole is spoiled. You might just as well put a quantity of rotten mushrooms into a bottle of ink, and expect that it should retain its virtue. It has been found that the bruised or powdered materials of this receipt for making ink, if infused in cold water and well strained, will answer the purpose, where it is difficult or inconvenient to heat them as before directed. If the ink be required to be more black and glossy than usual, increase with discretion the quantities of gum and sugar-candy: but too much of them will make the ink sticky; and which should not be used, where the writing is made in any folding book.

304. *To make one Gallon of Black Writing Ink.*

Into a glazed stone jar or pitcher put one pound of Aleppo galls, slightly bruised; then add one gallon of rain water, nearly of a boiling heat; let these stand together for fourteen days upon the kitchen hearth, or moderately warm; after that time add four ounces of green copperas or sulphate of iron, four ounces of logwood chips or shavings, one ounce of alum, one ounce of sugar-candy, and four ounces of gum-arabic or senegal. Let the whole remain ten or twelve days longer in a moderate heat, the mouth of the vessel slightly covered with paper. Stir the ingredients well with a stick twice a day during the whole time; then strain off the ink through linen or flannel, bottle it, pour a little brandy on the top of the ink in each bottle, then cork them well, and keep them for use in a place of temperate heat.

This ink may be depended upon as excellent, durable, and preserving the writing all a deep black.

N.B.—The best galls for the purpose are those which are dark coloured, heavy, and free from grub holes.

305. *Red Ink.*

Take a quarter of a pound of the best Brazil-wood, (get it in the log if possible, and rasp or shave it yourself), one ounce of cream of tartar, and one ounce of alum; boil these ingredients in a quart of clear water till half is consumed, then add to the ink, when filtered hot, one ounce of gum-arabic and one ounce of fine sugar.

A little salt added will prevent it from becoming mouldy.

306. *To prevent Ink from moulding.*

Half a dozen cloves, bruised with gum-arabic, are to be put into the bottle. If a very fine ink is wanted, white wine, or vinegar and water, should be used instead of water alone.

307. *To make Indian Ink.*

Put six lighted wicks into a dish of oil; hang an iron or tin concave cover over it so as to receive all the smoke; when there is a sufficient quantity of soot settled to the cover, then take it off gently with a feather upon a sheet of paper, and mix it up with gum tragacanth to a proper consistence.

N. B. The clearest oil makes the finest soot, consequently the best ink.

308. *To make China Ink.*

Take dried black horse-beans burn them to a powder, mix them up with gum-arabic water, and bring them to a mass; press it well, and let it dry.

309. *Substitute for Indian Ink.*

Boil parchment slips, or cuttings of glove leather, in water, till it forms a size, which, when cool, becomes of the consistence of jelly; then, having blackened an earthen plate, by holding it over the flame of a candle, mix up, with a camel hair pencil, the fine lamp-black thus obtained, with some of the above size, while the plate is still warm. This black requires no grinding, and produces an ink of the very colour, which works as freely with the pencil, and is as perfectly transparent as the best Indian ink; it possesses the advantage of furnishing artists with a substitute for that article, which may be prepared in situations where it might be difficult to obtain the ink itself.

310. *German Black for Printers.*

Take the lees of port wine, dry and burn them; add thereto good ivory black, the stones of cherries, plums, or other stone fruit, burnt in close vessels, and fine soft charcoal made from burnt willow; grind the whole well together into one mass, from which the best printing ink may be formed.

311. *Permanent Writing Ink.*

As common writing ink is susceptible of being effaced by oxygenated muriatic acid, and as the knowledge of this fact may be abused to very fraudulent purposes, the following composition for inks, absolutely indestructible, is recommended to the notice of the curious.

Boil one ounce of Brazil wood, and three ounces of nut-galls, in 46 ounces of water, till they shall be reduced to thirty ounces in all. Pour this decoction, while it is yet hot, upon half an ounce of sulphate of iron, or martial vitriol, a quarter of an ounce of gum-arabic, and a quarter of an ounce of white sugar. After these substances are dissolved, add to the solution one ounce and a quarter of indigo, finely pulverized, with three quarters of an ounce of lamp-black, very pure, of smoke black, previously diluted in one ounce of the best brandy.

The following receipt is still more simple: Boil one ounce of Brazil wood, with twelve ounces of water, and half an ounce of alum; continue the ebullition till the liquid mixture shall have been reduced to eight ounces; then add an ounce of the black oxide of manganese, which has been reduced by decantation to extreme fineness, and, in mixture with it, half an ounce of gum-arabic

Remark—The chief advantage of this ink (said to be proposed by Schever) is, that it is in part a printer's ink; the black oxide of manganese, and the lamp-black, not being affected by acids, and the indigo in powder but slightly, so that they must be effaced by rubbing or washing off, and not by solution. The ink, however, is not *absolutely indestructible*, nor equal to the common indelible ink, which may be used on paper as well as silk, linen, and cotton cloths.

312. *Permanent Red Ink for marking Linen.*

This useful preparation, which was contrived by the late learned and ingenious Dr. Smellie, of Edinburgh, who was originally a printer in that city, may be used either with types, a hair pencil, or even with a pen. Take half an ounce of vermilion, and a dram of salt of steel; let them be finely levigated with linseed oil, to the thickness or limpidity required for the occasion. This has not only a very good appearance; but will, it is said, be found perfectly to resist the effects of acids, as well as of all alkaline leys. It may be made of other colours, by substituting the proper articles instead of vermilion.

313. *To make Sympathetic or Invisible Ink.*

Let quick-lime be quenched in common water, and while quenching let some red orpiment be added to it, (this, however, ought to be done by placing warm ashes under it for a whole day), and let the liquor be filtered and preserved in a glass bottle well corked. Then boil litharge of gold, well pounded, for half an hour, with vinegar, in a brass vessel, and filter the whole through paper, and preserve it also in a bottle closely corked. If you write any thing with this last water, with a clean pen, the writing will be invisible when dry; but if it be washed over with the first water, it will become instantly black. And it is wonderful, that though sheets of paper without number, and even a board, be placed between the invisible writing and the second liquid, it will have the same effect, and turn the writing black, penetrating the wood and paper, without leaving any traces of its action, which is certainly surprising.

314. *To make Stuchum, or Perpetual Ink of the Ancients, for writing on Stone.*

This ink, or stuchum, as it was formerly called, is made by mixing about three parts pitch with one of lamp-black, which are to be incorporated by melting the pitch into the lamp-black. This composition they used in a melted state, by filling up the letters previously marked on stones, which would, unless any extraordinary violence was used, endure as long as the stone itself.

315. *Permanent Ink.*

100 grains of lunar caustic, three grains of sap green, and one ounce of rain water; all mixed together.

316. *Liquid Pounce to prepare the Linen.*

One ounce of prepared soda, and two drams of gum-arabic dissolved in six ounces of rain water.

317. *Permanent Ink for marking Linen.*

Take of lunar caustic, (now called *argentum nitratum*), one drachm; weak solution, or tincture of galls, two drachms. The cloth must be wetted first with the following liquid, viz. salt of tartar, one ounce; water, one ounce and a half; and it must be made perfectly dry before it is written upon.

318. *To make Ink.*

One ounce of bruised galls, half an ounce of copperas, a quarter of an ounce of gum-arabic, and one pint of water. Shake it frequently for a week.

319. *Secret Methods of Writing*

A letter of common business may be interlined, by writing with sal-ammoniac dissolved in water, or with the juice of a lemon: these letters will not be visible till they are held by the fire; but a letter so written will, in a short time, discover itself from the corroding acid and moisture of the liquid. So a letter, written with dissolved alum, will not be discernible till the paper be dipped in water.

A letter may be written with the yolk of an egg; but when the letters are quite dry, the paper must be blackened all over with ink, and the confederate, by scraping the paper gently with a knife, will expose the letters written with an egg, while the rest of the paper continues black.

320. *An artificial Water for writing Letters of Secrecy.*

Take copperas, finely powdered, put a little thereof into a new ink-horn, pour clean water on it; and after it has stood a little while, write therewith, either on vellum or parchment, and the writing cannot be seen any other way than by drawing the letters through a water thus prepared:—Take a pint of water, put into it one ounce of powdered galls, temper it together, and strain it through a cloth; put the water into a dish that is wide enough, and draw your writing through it, and you will read it as you do other writings; and to make the secret contents less liable to suspicion, you may write on the contrary side of the paper or parchment, with black writing ink, matters of less consequence.

321. *Another.*

Take flake-white, or any other whitening, and dilute it in water impregnated with gum adragant. If you write with this liquor the writing will not be perceivable, unless you hold the paper to the sun or the light of a candle. The reason why it is so, is, that the rays of light do not pass with the same facility through the letters, formed with this liquor, as through the other parts of the paper.

322. *To write both blue and red Letters at once with the same Ink and Pen, and upon the same Paper.*

Take the quantity of a hazel nut of litmus blue to three spoonsful of conduit water, wherein some gum-arabic is dissolved, and when it has settled the space of an hour, if you write with it, you will have letters of a perfect blue; and if you dip a hair pencil in the juice of lemons, and moisten some part of the paper therewith, afterwards letting it dry again, and then write upon the place where the juice of lemons was laid with the blue ink, the letters will suddenly become red, and in all the rest of the paper they will be blue.

323. *To write different Colours upon the same Paper with the Juice of Violets.*

Dip a camel-hair pencil in diluted spirit of vitriol, or any other acid, run it over part of the paper, and when it is dry write upon it with a pen dipped in the juice of violets, and the writing will immediately turn to a fine red —If you write with pure violet-juice, you have a violet blue,—By running the other part of the paper over with a hair-pencil dipped in any alkaline salt, as salt of wormwood dissolved in water, and writing upon the same, when dry, with violet-juice, you have a very fine green. Writing upon tincture of steel with violet-juice you have a black. If you write with the juice of violets, and rub on one part of the writing spirit of vitriol, and on the other spirit of hartshorn, or salt of wormwood dissolved, you have red and green. When the writing is held to the fire it becomes yellow.

324. *Method of forming Letters of Gold on Paper, and for Ornaments of Writing.*

Pulverize gum-ammoniac, and dissolve it in water, previously impregnated with a little gum-arabic and some juice of garlic. The gum-ammoniac will not dissolve in water, so as to form a transparent fluid, but produces a milky appearance; with the liquor thus prepared, draw with a pencil or write with a pen, on paper or vellum, the intended figure or letters of the gilding; suffer the paper to dry, and then, or any time afterwards, breathe on it till it be moistened, and immediately lay leaves of gold, or parts of leaves cut in the most advantageous manner, in order to save the gold, over the parts drawn or written upon, and press them gently on the paper, with a ball of cotton or soft leather; when the paper becomes dry, which a short time or gentle heat will soon effect, brush off with a soft pencil, or rub off by a fine linen rag, the redundant gold which covered the parts between the lines of the drawing or writing, and the finest hair strokes of the pencil or pen, as well as the broader, will appear perfectly gold.

325. *Simple Method of copying Letters, without the Use of a Copying Machine.*

Put a little sugar in common writing ink; write with this on common sized paper as usual; when a copy is required, unsized paper is taken, and lightly moistened with a sponge. Apply the wet paper then to the writing, and a flat iron, such as is used by laundresses, of a moderate heat, being lightly passed over the unsized paper, the counter-proof or copy is immediately produced.

326. *To make durable Writing on Paper.*

Dissolve gum-arabic in water, and add thereto ivory-black, extremely well ground, and write therewith. Acids cannot discharge this writing; and if you wish to secure it against the steams of hot water, the writing may be covered with white of egg clarified.

327. *To preserve Letters from being opened.*

Various ways have been contrived to open letters, sealed with wafers only, but the following composition is perfectly secure.—Take fine powder of bean-flour; add thereto white of egg, well whisked to a fine liquid: make a paste from this mixture, of which put a little under the sealing place; then close the two papers, and hold the part close to the steam arising from the spout of a tea-kettle or tea-pot of boiling water, which will harden the cement, so that it cannot be opened without tearing.

328. *To take out Writing.*

When recently written, ink may be completely removed by the oxymuriatic acid (concentrated and in solution). The paper is to be washed over repeatedly with the acid; but it will be necessary afterwards to wash it also with lime-water, for the purpose of neutralising any acid that may be left on the paper, and which would considerably weaken it. But if the ink have been *long* written, it will have undergone such a change as to prevent the preceding process from taking effect. It ought therefore to be washed with liver of sulphur (sulphuret of ammonia) before the oxymuriatic acid is applied. It may be washed with a hair-pencil.

329. *Method of recovering the Legibility of decayed Writings.*

The best method of restoring legibility to decayed writings is found upon experiment to be, by covering the letters with phlogisticated alkali, with the addition of a diluted mineral acid; upon the application of which, the letters will change very speedily to a deep blue colour, of great beauty and intensity. A solution of prussiate of potash will also cause the letters to appear blue. To prevent the spreading of the colour, which, by blotting the parchment, detracts greatly from the legibility, the alkali should be put on first, and the diluted acid added upon it. The method found to answer best has been to spread the alkali thin with a feather over the traces of the letters, and then to touch it, gently, as near upon or over the letters as can be done, with the diluted acid, by means of a feather or bit of stick cut to a blunt point. Though the alkali should occasion no sensible change of colour, yet the moment the acid comes upon it, every trace of a letter turns at once to a fine blue, which soon acquires its full intensity, and is beyond comparison stronger than the colour of the original trace had been. If, then, the corner of a bit of blotting paper be carefully and dexterously applied near the letters, so as to imbibe the superfluous liquor, the staining of the parchment may be in a great measure avoided: for it is this superfluous liquor which, absorbing part of the colouring matter from the letters, becomes a dye to whatever it touches. Care must be taken not to bring the blotting paper in contact with the letters, because the colouring matter is soft, whilst wet, and may easily be rubbed off. The acid chiefly employed has been the marine; but both the vitriolic and nitrous succeed very well. They should be so far diluted as not to be in danger of corroding the parchment; after which the degree of strength does not seem to be a matter of much nicety.

330. *To revive old Writings which are almost defaced.*

Boil gall nuts in wine; then steep a sponge into the liquor, and pass it on the lines of the old writing: by this method the letters which were almost undecypherable will appear as fresh as if newly done.

331. *To gild Letters on Vellum or Paper.*

Letters written on vellum or paper are gilded in three ways: in the first a little size is mixed with the ink, and the letters are written as usual; when they are dry, a slight degree of stickiness is produced by breathing on them, upon which the gold leaf is immediately applied, and by a little pressure may be made to adhere with sufficient firmness—In the second method, some white lead or chalk is ground up with strong size, and the letters are made with this by means of a brush; when the mixture is almost dry, the gold leaf may be laid on, and afterwards burnished. The last method is to mix up some gold powder with size, and make the letters of this by means of a brush.

332. *To make Pounce.*

Gum-sandarac, powdered and sifted very fine, will produce an excellent preventive to keep ink from sinking in the paper after you have had occasion to scratch out any part of the writing.

333. *Another Method.*

Cuttle-fish bone, properly dried, one ounce; best rosin, one ounce; and the same quantity of burnt alum, well incorporated together, will make very good pounce, equal, if not superior, to any bought at the shops.

334. *Method of obtaining exact Copies of Inscriptions.*

The stone, or other matter, in which the inscription is cut, is to be first well washed and dried; then with printer's balls the surface is laid over with printing-ink, in the same manner as it is laid on types; one or more sheets of paper, according to the size of the inscription, previously damped, are then laid over it, and the impression taken off by striking the paper with a clean ball, the hand, or a brush.

Three or four copies should be taken in this manner, as the fourth is usually the most perfect. As the inscription will be reversed on the paper, it may be read off right, on the other side, by holding the paper against the light. If the inscription is in relievo, the letters will be black; if in hollow, the letters will be white and the ground black.

335. *Beneficial Purpose to which the Juice of Aloes may be applied.*

In the East Indies aloes are employed as a varnish to preserve wood from worms and other insects; and skins, and even living animals, are anointed with it for the same reason. The havock committed by the white ants in India first suggested the trial of aloe-juice, to protect wood from them; for which purpose the juice is either used as extracted, or in solution, by some solvent.

336. *Efficacy of the Juice of Aloes on Ships' Bottoms.*

Aloes have been found effectual in preserving ships from the ravages of the worm, and the adhesion of barnacles. The ship's bottom, for this purpose, is smeared with a composition of hepatic aloes, turpentine, tallow, and white lead. In proof of the efficacy of this method, two planks of equal thickness, and cut from the same tree, were placed under water, one in its natural state, and the other smeared with the composition. When, on taking them up, after being immersed eight months, the latter was found to be perfect as at first, while the former was entirely penetrated with insects, and in a state of absolute rottenness.

337. *To bronze Plaster Figures.*

Lay the figure over with isinglass size till it holds out, or without any part of its surface becoming dry or spotted; then, with a brush, such as is termed by painters a sash tool, go over the whole, observing carefully to remove any of the size (while it is yet soft) that may lodge on the delicate or sharp places, and set it aside to dry; when it has become so, take a little very thin oil gold-size, and, with as much of it as just damps the brush, go over the figure, allowing no more of this size to remain than what causes it to shine. Set it apart in a dry place, free from smoke; and after it has remained there forty-eight hours, the figure is prepared for bronzing.

The bronze, which is almost an impalpable powder (and may be had at the colour shops, of all metallic colours), should be dabbed on with a little cotton wool; after having touched over the whole figure, let it stand another day; then, with a soft dry brush, rub off all the loose powder, and the figure will resemble the metal it is intended to represent, and possess the quality of resisting the weather.

338. *Composition to take off Casts of Medals.*

Melt eight ounces of sulphur over a gentle fire, and with it mix a small quantity of fine vermilion; stir it well together, and it will dissolve like oil; then cast it into the mould, which is first to be rubbed over with oil. When cool, the figure may be taken, and touched over with aqua-fortis, and it will look like fine coral.

339. *Method of sweeping Chimneys without employing Children, and the Danger attending the old Method pointed out.*

Procure a rope for the purpose, twice the length of the height of the chimney; to the middle of it tie a bush (broom furze, or any other), of sufficient size to fill the chimney; put one end of the rope down the chimney (if there be any windings in it, tie a bullet or round stone to the end of the rope), and introduce the wood end of the bush after the rope has descended into the chamber; then let a person pull it down. The bush, by the elasticity of its twigs, brushes the sides of the chimney as it descends, and carries the soot with it. If necessary, the person at top, who has hold of the other end of the rope, draws the bush up again; but, in this case, the person below must turn the bush, to send the wood end foremost, before he calls to the person at top to pull it up.

Many people, who are silent to the calls of humanity, are yet attentive to the voice of interest: chimneys cleansed in this way never need a tenth part of the repairs required where they are swept by children, who being obliged to work themselves up by pressing with their feet and knees on one side, and their back on the other, often force out the bricks which divide the chimneys. This is one of the causes why, in many houses in London, a fire in one apartment always fills the adjoining ones with smoke, and sometimes even the neighbouring house. Nay, some houses have even been burnt by this means; for a foul chimney, taking fire, has been frequently known to communicate, by these apertures, to empty apartments, or to apartments filled with timber, where, of course, it was not thought necessary to make any examination, after extinguishing the fire in the chimney where it began.

340. *New Method of clearing Feathers from their Animal Oil.*

Take, for every gallon of clear water, a pound of quick-lime; mix them well together; and, when undissolved lime is precipitated in fine powder, pour off the clear lime-water for use at the time it is wanted. Put the feathers to be cleaned in another tub, and add to them a sufficient quantity of the clear lime-water to cover the feathers about three inches, when well immersed and stirred therein. The feathers, when thoroughly moistened, will sink down, and should remain in the lime-water three or four days; after which, the foul liquor should be separated from the feathers, by laying them on a sieve. The feathers should be afterwards well washed in clean water, and dried on nets, the meshes being about the same fineness as those of cabbage nets. The feathers must, from time to time, be shaken on the nets; and, as they dry, they will fall through the meshes, and are to be collected for use. The admission of air will be serviceable in the drying, and the whole process may be completed in about three weeks. The feathers, after being thus prepared, will want nothing more than beating for use, either for beds, bolsters, pillows, or cushions.

341. *To preserve the natural Colour in Petals of dried Flowers.*

Nothing more is necessary than to immerse the petals for some minutes in alcohol. The colours will fade at first; but in a short time they will resume their natural tint, and remain permanently fixed.

342. *Substitute for Hemp and Flax.*

As hemp and flax (lint) is now very high-priced, if the public would turn their attention to the Urtica Dioica (common nettle), an excellent hemp might be obtained from it, by cutting it just before the seed is ripe, and steeping it in water, as they do hemp or flax, and manufacturing it the same way; the root of the plant is esteemed to be diuretic, and the roots, boiled with alum, will dye yarn a yellow colour. It is likewise used by making a strong decoction of the young plant, and salt put to it, and bottled up, which will coagulate milk, and make it very agreeable; by which means that plant, which is an obnoxious weed, might be turned to good account.

343. *Swedish Method for preserving from Rust Iron Work exposed to Air.*

They take such a quantity of pitch and tar as they think they have occasion for, and mix up with it such a quantity of the best sort of soot as not to make it too thick for use; with this composition they paint or besmear all the parts of the iron work, for which purpose they make use of short hard brushes, because they must press pretty strongly upon the iron in order to give it a sufficient quantity, and they always choose to perform this operation in the spring time of the year, because the moderate heat of the season hardens the pitch so much that it is never melted by the succeeding heats of the summer, but, on the contrary, acquires such a gloss as to look like varnish. This has been found, by experience, to preserve iron from rust much better than any sort of paint, and is as cheap as any that can be made use of.

344. *Composition that will effectually prevent Iron, Steel, &c. from rusting.*

This method consists in mixing, with fat oil varnish, four-fifths of well rectified spirit of turpentine. The varnish is to be applied by means of a sponge; and articles varnished in this manner will retain their metallic brilliancy, and never contract any spots of rust. It may be applied to copper, and to the preservation of philosophical instruments; which, by being brought into contact with water, are liable to lose their splendour, and become tarnished.

345. *To prevent Steel or Iron from Rust.*

Take one pound of hog's lard free from salt, one ounce of camphire, two drachms of black lead powder, and two drachms of dragon's blood in fine powder; melt the same on a slow fire until it is dissolved, and let it cool for use.

346. *To prevent polished Hardware and Cutlery from taking Rust.*

Case-knives, snuffers watch-chains, and other small articles made of steel, may be preserved from rust, by being carefully wiped after use, and then wrapped in coarse brown paper, the virtue of which is such, that all hardware goods from Sheffield, Birmingham, &c. are always wrapped in the same.

347. *To clear Iron from Rust.*

Pound some glass to fine powder, and having nailed some strong linen or woollen cloth upon a board, lay upon it a strong coat of gum-water, and sift thereon some of your powdered glass, and let it dry; repeat this operation three times, and when the last covering of powdered glass is dry, you may easily rub off the rust from iron utensils, with the cloth thus prepared.

348. *To soften Ivory and Bones.*

Take sage, boil it in strong vinegar, strain the decoction through a piece of close cloth; and when you have a mind to soften bones or ivory, steep them in this liquor, and the longer they remain in the softer they will grow.

349. *Improved Method of taking off Impressions of Leaves, Plants, &c.*

Take half a sheet of fine wove paper, and oil it well with sweet oil; after it has stood a minute or two, to let it soak through, rub off the superfluous oil with a piece of paper, and let it hang in the air to dry; after the oil is pretty well dried in, take a lighted candle or lamp, and move the paper slowly over it, in an horizontal direction, so as to touch the flame, till it is perfectly black. When you wish to take off impressions of plants, lay your plant carefully on the oiled paper, and lay a piece of clean paper over it, and rub it with your finger, equally in all parts, for about half a minute; then take up your plant, and be careful not to disturb the order of the leaves, and place it on the book or paper, on which you wish to have the impression; then cover it with a piece of blotting-paper, and rub it with your finger for a short time, and you will have an impression superior to the finest engraving. The same piece of black paper will serve to take off a great number of impressions; so that when you have once gone through the process of blacking it, you may make an impression in a very short time.

The principal excellence of this method is, that the paper receives the impression of the most minute veins and hairs; so that you may take the general character of most flowers, much superior to any engraving. The impressions may afterwards be coloured according to nature.

350. *To obtain the true Shape and Fibres of a Leaf.*

Rub the back of it gently with any hard substance, so as to bruise the fibres; then apply a small quantity of linseed oil to their edges; after which, press the leaf on white paper, and, upon removing it, a perfectly correct representation of every ramification will appear, and the whole may be coloured from the original.

351. *Another Way.*

This may be called printing of a leaf, and is effected by carefully touching the fibres with one of those balls, lightly covered with printers' ink, and impressing it on wet paper. This is done to most advantage by a round stick, covered with woollen cloths, rolled backwards and forwards over the paper and leaf.

352. *To whiten Linseed Oil.*

Take any quantity of linseed oil, and to every gallon add two ounces of litharge; shake it up every day for fourteen days, then let it settle a day or two; pour off the clear into shallow pans, the same as dripping-pans, first putting half a pint of spirits of turpentine to each gallon. Place it in the sun, and in three days it will be as white as nut oil. This oil, before it is bleached, and without the turpentine, is far superior to the best boiled oil, there being no waste or offensive smell.

353. *Sophistication of Oil of Lavender and all Essential Oils.*

These valuable oils are frequently adulterated by a mixture of oil of turpentine, which may be known by dipping a little paper, or rag, in the oil to be tried, and holding it to the fire; the fine scented oil will fast evaporate, and leave the smell of the turpentine distinguishable, if any has been mixed therewith.

354. *To preserve Fishing-rods.*

Oil your rods, in summer, with linseed oil, drying them in the sun, and taking care the parts lie flat: they should be often turned, to prevent them from warping. This will render them tough, and prevent their being worm-eaten; in time they will acquire a beautiful brown colour. Should they get wet, which swells the wood, and makes it fast in the sockets, turn the part round over the flame of a candle a short time, and it will be easily set at liberty.

355. *To make Quill Floats for Fishing.*

Take any quantity of swan or goose quills you may want, cut off the barrel part from that where the feathers grow, and, with a thick piece of wire wrapped round the end with cotton wool, clear the inside of the quill from the film; put in a small piece of pitch, about the size of a sweet pea, and, with the wire, force it to the end, ramming it close this will effectually keep out the water; put a small piece of cotton wool upon the pitch, sufficient, when forced close into the quill, to form a space of a quarter of an inch, and, upon the cotton, add another piece of pitch of the same size as the first, which will secure the cotton, and make the float easily discerned on the water; take a piece of sallow hazel, or other soft wood, about the same size as the circumference of the quill, and about two inches long; fit it neatly about $\frac{3}{4}$ of an inch into the quill, and fasten it with a cement made of powdered bees'-wax, rosin, and chalk, melted over the fire in a ladle; dip the plug in when it is sufficiently melted and incorporated, and put into it immediately a piece of doubled brass wire, the loop end formed into a round eye, and the other twisted, which will pass into the plug like a screw, holding the wire fast with a pair of small pliers, and turning the float round; the line passes through the eye of the wire; the top of the float is made fast to the line by a hoop made of the barrel part of the quill, and rather wider than the float, to admit the thickness of the line; by means of this hoop the float may be shifted at pleasure, according to the depth you are inclined to fish: the hoops may be dyed red by the following method.—Take some stale urine, and put to it as much Brazil wood in powder as will make it a deep red; then take some fair water, and put a handful of salt into it, and a small quantity of argol, stirring them till they are dissolved; boil them over the fire in a saucepan, and when cold, put in the quills, well scraped, and let them lie awhile in it: then take them out, and put them into the urine made red with the Brazil wood, and let them continue a fortnight; when dry, rub them with a woollen cloth, and they will be transparent. The hoops must be cut with a sharp knife, or the quill will split.

356. *Improved Method of making Cork Floats for Fishing.*

Take a cork, firm and free from flaws, and with a small red-hot iron bore a hole lengthwise through the centre; with a sharp knife cut it across the grain about two-thirds of the length, tapering to the end where the hole is bored, and the remaining third rounded with it (which is the top of the float), in the shape of an egg, the lower end tapering more gradually, resembling in shape the small peg-tops children play with.

357. *Easy Method of dying Fishing Lines.*

Lines of silk or hemp may be coloured by a strong decoction of oak bark, which, it is believed, renders them more durable, and resists the water; it gives them an excellent russet-brown colour, and any shade of it may be obtained, by the time they remain in the decoction, which should be cold.

358. *To prevent Fishing Lines from rotting.*

Never wind your lines on your reel wet; at least, when you get home, wrap them round the back of a chair, and let them be thoroughly dried, otherwise they will soon rot, and cannot be depended on: with this care they will last a considerable time.

359. *Method of extinguishing Fires in Chimneys.*

Stop with a wet blanket the upper orifice of the tunnel; but the surest and readiest method is to apply the blanket either to the throat of the chimney, or over the whole front of the fire-place. If there happens to be a chimney board or a register, nothing can be so effectual as to apply them immediately: and having by that means stopped the draught of air from below, the burning soot will be put out as readily and as completely as a candle is put out by an extinguisher, which acts exactly upon the same principle.

360. *To extricate Horses from Fire.*

If the harness be thrown over a draught, or the saddle placed on the back of a saddle-horse, they may be led out of the stable as easily as on common occasions. Should there be time to substitute the bridle for the halter, the difficulty towards saving them will be still further diminished.

361. *Method of rendering all Sorts of Paper, Linen, and Cotton, less combustible.*

This desirable object may be, in some degree, effected, by immersing these combustible materials in a strong solution of alum-water: and, after drying them, repeating this immersion, if necessary. Thus, neither the colour, nor the quality of the paper, will be in the least affected; on the contrary, both will be improved: and the result of the experiment may be ascertained, by holding a slip of paper, so prepared, over a candle.

362. *To prevent Wood, Linen, &c. from catching Fire.*

One ounce of sulphur, one ounce of red ochre, and six ounces of a solution of copperas. To prevent wood from catching fire, it is first to be covered with joiner's glue, over which the powder is spread. This process is to be repeated three or four times after the wood is become dry. In linen and paper, water is to be used instead of glue, and the process is repeated twice.

363. *To make Water more efficacious in extinguishing Fires.*

Throw into a pump, which contains fifty or sixty buckets of water, eight or ten pounds of salt or pearl-ashes, and the water thus impregnated will wonderfully accelerate the extinction of the most furious conflagration. Muddy water is better than clear, and *can* be obtained when salt and ashes cannot.

364. *To extinguish Fires speedily.*

Much mischief arises from want of a little presence of mind on these alarming occasions: a small quantity of water, well and immediately applied, will frequently obviate great danger. The moment an alarm of fire is given, wet some blankets well in a bucket of water, and spread them upon the floor of the room where the fire is, and afterwards beat out the other flames with a blanket thus wet; two or three buckets of water thus used early will answer better than hundreds applied at a later period. Linen thus wet will be useful, but will not answer so well as woollen.

365. *To stop the Progress of Fire on board of Ships.*

From the great confusion occasioned by the alarm of fire on board a ship, with the difficulty often of ascertaining the precise spot where it is, it appears almost impossible to devise any means to prevent the progress of such an accident when once it has got head.

The only mean that seems to promise success is to convey water to any part of the ship according to the following method:—To place strong pipes through the decks, close to the sides of the vessel; those going to the hold must be cased, to prevent their being damaged by moving stores between the decks. These may be so distributed that every part between the decks may be within the reach of a stream of water issuing from them. The magazine and place where spirits and inflammable stores are kept ought to have the greatest number of pipes about them, to prevent the fire reaching those parts.

Streams of water to the part on fire may be directed by a lever fixed on the top of the pipe, the end of which corresponding with the aperture below, the same vertical plane will pass through the lever and the stream.

Small engines, such as those used for watering gardens, will be sufficient for the purpose. Two men only will be required for the service of each pipe, one to supply it, and the other to direct the stream.

366. *Method of increasing the Effects of Gunpowder, and also showing the Necessity of certain Precautions in loading Fire-arms.*

It is a well known fact, which cannot be too often published, that a musket, fowling-piece, &c. is very apt to burst if the wadding is not rammed down close to the powder. Hence it is obvious, that in loading a screw-barrel pistol, care should be taken that the cavity for the powder be entirely filled with it, so as to leave no space between the powder and the ball.

If a bomb or shell is only half-filled with gunpowder, it breaks into a great number of pieces; whereas, if it is quite filled, it merely separates into two or three pieces, which are thrown to a very great distance.

If the trunk of a tree is charged with gunpowder, for the purpose of splitting it, and the wadding is rammed down very hard upon the powder, in that case the wadding is only driven out, and the tree remains entire; but if, instead of ramming the wadding close to the powder, a certain space is left between them, the effects of the powder are then such as to tear the tree asunder.

367. *To render Shoes Water-proof.*

Take one pint of drying oil, two ounces of yellow wax, two ounces of turpentine, and half an ounce of Burgundy pitch, melted carefully over a slow fire. If new boots or shoes are rubbed with this mixture, either in the sunshine or at some distance from the fire, with a sponge or soft brush, and the operation is repeated as often as they become dry, till the leather is fully saturated, they will be impervious to water, and will wear much longer, as well as acquire a softness and pliability that will prevent the leather from shrivelling. Time must be allowed for the shoes to become perfectly dry before they are taken into use.

368. *To clean Boot-tops, or any tanned Leather.*

Boil one quart of milk, let it stand till cold; then take one ounce of oil of vitriol; one ounce of spirits of salt; shake them well together, and add one ounce of red lavender. You may put half a pint of vinegar, with the white of an egg beat to a froth.

369. *Blacking Balls for Shoes.*

Mutton-suet, four ounces; bees'-wax, one ounce; sugar-candy, and gum-arabic, one drachm each, in fine powder; melt these well together over a gentle fire, and add thereto about a spoonful of turpentine, and ivory and lamp-black sufficient to give it a good black: while hot enough to run, you may make it into a ball, by pouring the liquor into a tin mould; or let it stand till almost cold, you may mould it in what form you please by the hand.

370. *A celebrated Blacking Cake for Boots and Shoes.*

Take one part of gum tragacanth, four parts of river water, two parts of neat's-foot, or some other softening, lubricating oil, two parts of superfine ivory-black, one part of Prussian blue in fine powder, or indigo, four parts of brown sugar-candy; boil the mixture; and when the composition is of a proper consistence, let it be formed into cakes of such a size that each cake may make a pint of liquid blacking.

371. *Preventives against the Ravages of the Moth.*

The most usual preventives against the injury occasioned by the moth are cedar-wood and tobacco leaves. A piece of the former put into a box, if sufficiently large to emit its peculiar odour to whatever may be contained in it, will effectually preserve the cloth from injury; and it is well known, that in libraries where there are books bound with Russia leather, which is tanned with cedar, no moth or worm will corrupt. It is common to put cedar shavings and chips into boxes, &c. which answer just as well as the wood itself.

Tobacco leaves may be placed at certain intervals in the folds of a piece of woollen cloth; and it is sufficient to examine them once in six months, in order to renew the leaves if necessary.

372. *Another.*

Get some narrow slips of the best Russia leather, and lay them among clothes, books, &c. The leather may be procured at any book-binder's, and a pound, which will last a long time, costs about a shilling. This has been frequently used with success.

373. *To purify Wool infested with Insects.*

The process of purification consists in putting into three pints of boiling water a pound and a half of alum, and as much cream of tartar, which are diluted in twenty-three pints more of cold water. The wool is then left immersed in this liquor during some days, after which it is washed and dried. After this operation it will no longer be subject to be attacked by insects.

374. *New Method of cleaning Silks, Woollens, and Cottons.*

The following receipt is recommended as a good method of cleaning silk, woollen, and cotton goods, without damage to the texture or colour of the same:

Grate raw potatoes to a fine pulp in clean water, and pass the liquid matter through a coarse sieve into another vessel of water; let the mixture stand still till the fine white particles of the potatoes are precipitated: then pour the mucilaginous liquor from the fecula, and preserve the liquor for use. The article to be cleaned should then be laid upon a linen cloth on a table, and having provided a clean sponge, dip the sponge into the potatoe liquor, and apply it to the article to be cleaned, till the dirt is perfectly separated; then wash it in clean water several times. Two middle-sized potatoes will be sufficient for a pint of water. The white fecula will answer the purpose of tapioca, and make an useful nourishing food, with soup or milk, or serve to make starch and hair-powder. The coarse pulp, which does not pass the sieve, is of great use in cleaning worsted curtains, tapestry, carpets, or other coarse goods. The mucilaginous liquor will clean all sorts of silk, cotton, or woollen goods, without hurting or spoiling the colour; it may be also used in cleaning oil paintings, or furniture that is soiled. Dirtied painted wainscots may be cleansed by wetting a sponge in the liquor; then dipping it in a little fine clean sand, and afterwards rubbing the wainscot with it.

375. *Efficacy of Horse Chestnuts in bleaching Linen and clearing Woollen Stuffs, and as a Ley for preparing Hemp.*

The manner of making this ley is to peel the chestnuts, and rasp them as fine as possible into soft water. This is done ten or twelve hours before the mixture is to be used; and, in the meanwhile, it is stirred from time to time, the better to dissolve these raspings and impregnate the water. The last stirring is given about a quarter of an hour before the water is drawn off from the thickest part of the raspings which subside; and this is done either by inclining the vessel and pouring off the ley gently, or by ladling it out by hand, while the water is yet white and froths like soap-suds. In order to use this ley, it is made rather hotter than the hand can well bear, and the hemp is then steeped and washed in it as in soap-suds. Linen may also be washed in this ley, and even when very dirty much less soap will be required than is commonly used, it being sufficient to rub the dirtiest parts only with soap.—The raspings of the chestnuts, which sink to the bottom of the ley, are good for fowls and pigs. Hemp, as above prepared, may be dyed like silk, wool, or cotton, and may be made into stuff and garments of all kinds: a great advantage attending the use of this material is, that it will not be destroyed by those insects which devour woollen cloth.

376. *To bleach Bees'-Wax.*

Melt your wax, and while hot throw it into cold water to reduce it into little bits, or spread it out into very thin leaves, and lay it out to the air, night and day, on linen cloths, then melt it over again, and expose it as before: repeat this till the sun and dew have bleached it; then, for the last time, melt it in a kettle, and cast it with a ladle on a table covered over with little round hollows, in the form of the cakes sold by the apothecaries; but first wet your moulds with cold water, that the wax may be the easier got out: lastly, lay them out in the air for two days and two nights, to make it more transparent and drier.

377. *Substitute for Flax.*

Steep *broom-twigs* or the former year's branches, (preferring the most vigorous shoots) for two or three weeks, more or less, according to the heat of the season, in stagnant water; or boil them for an hour in water. This done, the flax separates freely from the twigs; and where there is not machinery for the purpose, it may easily be stripped off by children or others, when not quite dry, in the same manner as hemp is pulled from the stalks. When stripped from the twigs, the flax requires only to be well washed in cold water, then wrung and shaken well, and hung out to dry, previously to its being sent off to the paper-manufacturer, &c.—Professor Davy has bleached some of it for the Rev. James Hall, (to whom we owe this valuable discovery), who has also seen it spun. The same gentleman also observes, that the fibres of all kinds of mallow, especially those of the *malva sylvestris*, are particularly beautiful; they are finer than camel's hair, to which they bear some resemblance, and there is no difficulty in procuring them.

What adds to the value of this discovery is, that the broom-twigs, or wood, after being cleared of the flax, and steeped for some time in boiling water, become *tough* and beautifully white, and are worth, at a medium, from twelve to eighteen pence per pound, for making *carpet-brooms*, &c.

378. *Economical Use of Nutmegs.*

If a person begin to grate a nutmeg at the *stalk end*, it will prove hollow throughout; whereas the *same* nutmeg, grated from the *other* end, would have proved sound and solid to the last. This circumstance may thus be accounted for:—The centre of a nutmeg consists of a number of fibres issuing from the stalk and its continuation through the centre of the fruit, the other ends of which fibres, though closely surrounded and pressed by the fruit, do not adhere to it. When the stalk is grated away, those fibres, having lost their hold, gradually drop out, and the nutmeg appears hollow: as more of the stalk is grated away, others drop out in succession, and the hollow continues through the whole nut. By beginning at the contrary end, the fibres above-mentioned are grated off at their core end, with the surrounding fruit, and do not drop out and cause a hole.

379. *To ascertain the Quality of Nutmegs.*

Oil of nutmegs being of great value, it is often extracted from the nuts, which are exposed to sale, and which are thereby rendered of very little value. To ascertain the quality of nutmegs, force a pin into them; and if good, however dry they may appear, the oil will be seen oozing out all round the pin, from the compression occasioned in the surrounding parts.

380. *To increase the Durability of Tiles.*

Recent experiments have shown, that tiles are greatly improved and rendered *impervious to water and frost,* by being rubbed over with tar before they are laid on the roof.

381. *To prevent Brass Vessels from contracting Verdigris, after being used.*

Instead of wiping them dry, it has been found, that by constantly immersing them in water, they are kept perfectly innoxious, and will remain for years fully as clean and nearly as bright as when they first came out of the hands of the workmen.

382. *Improved Mode of preserving Flowers.*

Take three pounds of roses, and rub them for two or three minutes with one pound of common salt. The flowers, being bruised by the friction of the salt, yield their juice, so that a paste is immediately formed, which may be put in an earthen jar, or in a barrel, till filled, by repeating the same process. Then close it, and keep it in a cool place, till wanted. When required to be distilled, this aromatic paste is to be put into the body of the still, with twice its weight of water. Any season of the year will do for this operation. Hence it arises, that all plants being *well salted*, need only to be distilled when wanted, and may thus be used while all their medical virtues are in perfection.

383. *Vanherman's incomparable and durable White Paint, for inside Work only, which will dry and cease to smell within six Hours.*

Add to a gallon of spirit of turpentine two pounds of frankincense. Let it simmer over a clear fire, till dissolved; then strain it, and bottle it for use. To a gallon of bleached linseed oil add a quart of this mixture, shake them well together, and bottle this also. Let any quantity of white lead be ground very fine with spirit of turpentine; then add to it a sufficient portion of the last mixture, till it be found fit for laying on. If, in working, it should grow thick, it must be thinned with spirit of turpentine. This is what painters call a flat or dead white, to distinguish it from common white paint, being only suitable for the very best internal work, both on account of its superior delicacy and expense.

384. *Useful Knife-Board.*

A common knife-board, covered with thick buff-leather, on which are put emery, one part, *crocus martis*, three parts, in very fine powder, mixed into a thick paste with a little lard or sweet oil, and spread on the leather about the thickness of a shilling, gives a far superior edge and polish to knives; and will not wear the knife nearly so much as the common method of using brick-dust on a board.

385. *Substitute for Grease, for Coach Wheels, &c.*

Mix one pound of hog's lard with half a pound of black lead, stir them well together, while melting over a slow fire. If the axles and bushes of the wheels be true, a carriage may safely be run one hundred, or a hundred and fifty miles, with once using this composition.

386. *Method of preparing a cheap Substitute for Oil Paint, as durable as that prepared with Oil, and free from any bad Smell.*

Take fresh curds, and bruise the lumps on a grinding-stone, or in an earthen pan or mortar, with a spatula. After this operation, put them into a pot with an equal quantity of lime well quenched, and become thick enough to be kneaded; stir this mixture well, without adding water, and you will soon obtain a white coloured fluid, which may be applied with as much facility as varnish, and which dries very speedily. But it must be employed the same day, as it will become too thick the day following.

Ochre, Armenian bole, and all colours which hold with lime. may be mixed with it, according to the colour which you wish to give the wood; but care must be taken that the addition of colour to the first mixture of curds and lime may contain very little water, else the painting will be less durable.

When two coats of this paint have been laid on, it may be polished with a piece of woollen cloth or other proper substance, and it will become as bright as varnish. It is certain that no kind of painting can be so cheap; but it possesses, besides, other advantages; in the same day two coats may be laid on and polished, as it dries speedily, and has no smell. If it be required to give it more durability in places exposed to moisture, do over the painting, after it has been polished, with the white of an egg. This process will render it as durable as the best oil painting.

387. *German Method of making Elm and Maple Wood resemble Mahogany.*

Having very smoothly planed whatever boards of the elm or maple tree are intended to be used for the purpose of appearing like mahogany, wash them well with a little aquafortis diluted in common water. Then take a few drams of dragon's blood, according to the quantity which may be wanted in the whole, with half as much alkanet root, and a quarter of as much aloes, and digest these ingredients in four ounces of proof spirit to every dram of the dragon's blood, As soon as the boards are dry, varnish them over with this tincture, by means of a sponge, or soft painter's brush; and they will, it is said, ever after so wear the appearance of mahogany as to deceive the eye of any indifferent observer.

388. *Substitute for Mahogany.*

The difficulty of procuring mahogany and other precious woods, and the consequent exorbitant prices demanded for the ordinary articles of family convenience, has occasioned the art of the chemist to be applied to a subject peculiarly calculated to promote domestic embellishment at a trifling expense. It has been contrived to render any species of wood of a close grain, so nearly to resemble mahogany in the texture, density, and polish, that the most accurate judges are incapable of distinguishing between this happy imitation and the native produce. The first operation, as now practised in France, is to plane the surface, so as to render it perfectly smooth: the wood is then to be rubbed with diluted nitrous acid, which prepares it for the materials subsequently to be applied. Afterwards, one ounce and a half of dragon's blood, dissolved in a pint of spirits of wine, and one-third of that quantity of carbonate of soda, are to be mixed together, and filtered; and the liquid, in this thin state, is to be rubbed, or rather laid, upon the wood, with a soft brush. This process is repeated with very little alteration, and in a short interval afterwards the wood possesses the external appearance of mahogany. When this application has been properly made, the surface will resemble an artificial mirror; but if the polish become less brilliant, by rubbing it with a little cold drawn linseed oil, the wood will be restored to its former brilliancy.

389. To clarify Quills.

Scrape off the outer film, and cut the ends off; then put the barrels into boiling water, wherein is a small quantity of alum and salt; let them remain a quarter of an hour, and then dry them in a hot pan of sand, or an oven.

390. *To harden Quills.*

In order to harden a quill that is soft, thrust the barrel into hot ashes, stirring it till it is soft; and then taking it out, press it almost flat upon your knee with the back of a pen-knife, and afterwards reduce it to a roundness with your fingers. Another method to harden quills is by setting water and alum over the fire, and, while it is boiling, put in a handful of quills, the barrels only, for a minute, and lay them by.

391. *Dutch Method of preparing Goose Quills for Writing.*

The process consists in immersing the quill, when plucked from the wing of the bird, into water almost boiling; to leave it there till it becomes sufficiently soft to compress it, turning it on its axis with the back of the blade of the knife. This kind of friction, as well as the immersions in water, being continued till the barrel of the quill be transparent, and the membrane, as well as the greasy kind of covering, be entirely removed, it is immersed a last time to render it perfectly cylindrical, which is performed with the index finger and the thumb; it is then dried in a gentle temperature.

392. *Substitute for Curriers' Oil.*

A cheap substitute for the oil used by curriers in the preparation of leather, is made by boiling whale-oil for a few minutes, at a temperature of twenty-five degrees Reaumur, with nitric acid, in the proportion of half an ounce of the acid to a pound of oil.

393. *Easy Method of making a saponaceous Liquid, which may be used instead of Solutions of Soap for Washing.*

Take the ashes produced from the combustion of wood which has not been floated, and make a ley of them, according to the usual manner, mixing with the ashes a handful or two of quick-lime, well pounded or recently slaked. Let the ley stand till it is grown clear by the settling or swimming of the foreign substances contained therein; then pour it into another vessel, and keep it for use. When it is proposed to make use of this ley, take any quantity of oil, and pour upon it thirty or forty times as much as of the ley. Immediately a liquor, white as milk, will be formed, which, by being well shaken, or stirred, lathers and froths like a good solution of soap. This liquor is to be poured into a washing tub, or other vessel, and to be diluted with a greater or less quantity of water; after which, the linen, meant to be washed, is to be steeped herein, to be rubbed and wrung in the usual way.

394. *Observations on the foregoing Receipt.*

1. It is better that the ley should not be made until the time when it is to be used; if it is left to stand in open vessels its power is weakened, and its nature changed.

2. Fresh wood-ashes are preferable to old ones particularly if the latter have been exposed to the air; in that case they have no longer their usual power; and in order to make them serve the purpose, mix with them a greater proportion of quick-lime.

3. Those ashes are preferable which are produced from hard wood; those which are left after

the burning of floated wood cannot be made use of with equal success.

4. Fat oils, of a thick consistence, are most proper for the purpose here spoken of; fine thin oils are by no means fit for it.

5. If stinking oil be made use of, it is apt to give a bad smell to the linen; this may be removed by passing the linen carefully through a strong pure ley; but, in general, this smell goes off as the linen becomes dry.

6. When the mixture of the oil with the ley is of a yellow colour, it must be diluted with water.

7. When the oil rises in the ley, and swims upon the surface of it, in the form of small drops, it shows that the oil is not fit for the purpose, not being thick enough: or else, that the ley is too weak, or not sufficiently caustic.

8. To prevent the quick-lime from losing its power, and to have always some for use when wanted, it may be broken into small pieces, and kept in bottles well dried and well corked, or in barrels.

395. *Method of extracting Starch from Horse Chestnuts.*

First take off the outward green prickly husks, and then, either by hand, with a knife, or other tool, or else with a mill adapted for that purpose, very carefully pare off the brown rind, being particular not to leave the smallest speck, and to entirely eradicate the sprout or growth. Next take the nuts, and rasp, grate, or grind them fine into water, either by hand or by a mill adapted for that purpose. The pulp, which is thereby formed in this water, must be washed as clean as possible through a coarse horse-hair sieve, then again through a finer sieve, and again through a still finer, constantly adding clean water to prevent any starch adhering to the pulp. The last process is to put it with a large quantity of water (about four gallons to a pound of starch) through a fine gauze, muslin, or lawn, so as entirely to clear it of all bran or other impurities; as soon as it settles, pour off the water; then mix it up with clean water, repeating this operation till it no longer imparts any green, yellow, or other colour to the water; then drain it off till nearly dry, and set it to bake either in the usual mode of baking starch, or else spread out before a brisk fire, being very attentive to stir it frequently to prevent its horning, that is to say, turning to a paste or jelly, which, on being dried, turns hard like horn. The whole process should be conducted as quickly as possible.

396. *To dissolve Wax in Water.*

To every pound of white wax take twenty-four ounces of potash dissolved in a gallon of warm water; that is caustic ley of potash, made with quick-lime. In this boil the wax, cut in small pieces, for half an hour; at the end of this time take it from the fire, and suffer it to cool. The wax floats on the surface in the form of white soap; triturated with water, it yields what is commonly called *milk of wax*, and may be applied to furniture, pictures, &c. An hour after the application, the coated parts are to be rubbed with a piece of woollen cloth, which will give a brilliancy to paintings, and a fine polish to furniture.

397. *To make Wafers.*

Take very fine flour, mix it with the glair (or whites) of eggs, isinglass, and a little yeast; mingle the materials, beat them well together, spread the batter, being made thin with gum water, on even tin plates, and dry them in a stove; then cut them for use. You may make them of what colour you please, by tinging the paste with Brazil or vermilion, for red; indigo or verditer, &c. for blue; saffron, turmeric, or gamboge, &c. for yellow.

398. *To stain Paper or Parchment Yellow.*

Paper may be stained of a beautiful yellow by the tincture of turmeric, formed by infusing an ounce or more of the root, powdered, in a pint of spirit of wine. This, by the addition of water, may be made to give any tint of yellow, from the lightest straw to the full colour called French yellow, and will be equal in brightness even to the best dyed silks. If yellow is wanted of a warmer or redder cast, annotto, or dragon's blood, must be added to the tincture.

399. *To stain Paper or Parchment Crimson.*

A very fine crimson stain may be given to paper, by a tincture of the Indian lake, which may be made by infusing the lake some days in spirit of wine, and then pouring off the tincture from the dregs.

400. *To stain Paper or Parchment Green.*

Paper or parchment may be stained green by the solution of verdigris in vinegar, or by the crystals of verdigris dissolved in water; also by the solution of copper in aquafortis, made by adding filings of copper, gradually, to the aquafortis, till no ebullition ensues; or the spirit of salt may be substituted for the aquafortis.

401. *To discharge Grease from Paper.*

Burn bones of sheep; with the powder rub both sides of the spot; and putting white pieces of paper on each side, lay the whole in a press. Repeat this process till the spot disappears.

402. *To wash white Lace.*

A quarter of a cake of white wax, six lumps of sugar, and a dessert-spoonful of made starch, to be mixed with a quart of soft water. Tack the lace very slightly in a thin cloth, dipped in cold water, then let it lie in a strong lather for one day; change the water, and leave it in a second lather all night. Put the above materials into a saucepan, boil the lace in it for ten minutes, then throw it into cold water, and when nearly dry iron it.

403. *To polish Mahogany.*

Put a quart of cold drawn linseed oil into a jar, set it in the chimney corner for twelve hours, and keep it afterwards in a bottle closely corked. Put this oil on the table with a linen cloth, rub it well, change the cloths frequently, and continue rubbing till the table is without a spot; after this process is completed, once a fortnight will be often enough to polish the tables, provided they are constantly, but gently rubbed with soft linen cloths.

404. *To polish Stones.*

Procure a *grit* stone, a foot square, rub the fossil or stone upon it till the surface of the fossil becomes flat; then procure three *grip* stones, of different degrees of smoothness. Rub the specimen, first, upon the coarsest, for a few minutes, then on the second, and last of all on the finest. Then cover a deal board with a piece of broad cloth, nail it on very tight; wet it, put some putty powder on it, and rub the specimen for twenty minutes, it will then have a fine polish, but the longer you rub it, the higher will be the polish. All the stones must be wetted when you rub them.

405. *To paint Tables.*

Take a deal or holly board, and draw upon it the outline of any figures you like with red paint; paint the whole board, except the body of the figures, of a deep red colour, because the body remaining of the original colour assumes an embossed appearance Scrape red sealing wax very fine, dissolve it in spirits of wine, and use it when very thick. The pattern should be drawn with coachmaker's size and gold leaf.

406. *To make a Liquid for staining Bone or Wood of different Colours.*

Take strong white wine vinegar in a glass vessel, and put to it filings of copper, with some Roman vitriol, roach alum, and verdigris, and leave it thus infused for seven days; then boil it in some vessel, and by putting into it bone, ivory, or wood, it will penetrate, and give it a green colour. If any other colour is required, as red, blue, or yellow, put Brazil wood, indigo, French berries, or any other such colours, to infuse in the vinegar, with a little roach alum.

407. *Art of dyeing or staining Leather Gloves, to resemble the beautiful York Tan, Limerick Dye, &c.*

These different pleasing hues of yellow, brown, or tan colour, are readily imparted to leather gloves by the following simple process: Steep saffron in boiling hot soft water for about twelve hours; then, having slightly sewed up the tops of the gloves, to prevent the dye from staining the insides, wet them over with a sponge or soft brush dipped into the liquid. The quantity of saffron, as well as of water, will of course depend on how much dye may be wanted; and their relative proportions, on the depth of colour required. A common tea-cup will contain sufficient in quantity for a single pair of gloves.

408. *To stain Wood a fine Black.*

Drop a little oil of vitriol into a small quantity of water, rub the same on your wood, then hold it to the fire until it becomes a fine black, and, when polished, it will be exceedingly beautiful.

409. *To stain Wood a beautiful Red or Mahogany Colour.*

Place a square piece of plane-tree wood, a line in thickness, into pounded dragon's blood, from the Canaries, mixed with oil of turpentine, over the fire, in a glass vessel, the wood will slowly assume the colour, even before the spirit has volatilised. After more than an hour take the vessel from the fire, and let it stand the whole night, when the wood will appear as mahogany colour, not merely on the surface, but also in the interior parts. The denser fibres will be somewhat less coloured; but this, instead of injuring the beauty of the wood, will rather add to it. The red dye can be made stronger or weaker, by taking a greater or less quantity of dragon's blood, and by a greater or less degree of digestion and boiling. The wood of the plane-tree is best for this purpose, because it can be easily sawn and polished; because it has a white colour; is neither too hard nor too soft; has beautiful white spots with veins that cross each other; and because artists, who make inlaid works, have long attempted to colour it by staining. The wood, when stained, can very easily be freed from the dragon's blood adhering to it, by means of rectified spirits of wine. The spirit of turpentine makes the wood more compact, and renders it more susceptible of a fine polish.

410. *To make Nankeen Dye.*

Boil equal parts of arnotto and common potash in water, till the whole are dissolved. This will produce the *pale reddish buff* so much in use, and sold under the name of *Nankeen Dye.*

411. *To dye Cotton a fine Buff Colour.*

Let the twist or yarn be boiled in pure water, to cleanse it; then wring it, run it through a dilute solution of iron in the vegetable acid, which printers call *iron liquor;* wring, and run it through lime-water, to raise it; wring it again, and run it through a solution of starch and water; then wring it once more, and dry, wind, warp, and weave it for use.

112. *Substitute for Galls in Dyeing and also in making Ink.*

The excrescences on the roots of young oaks may be used with advantage as a substitute for galls. Oak dust has been used in this country instead of galls, to produce a black dye: so also has a strong decoction of logwood, copperas, and gum-arabic.

413. *Easy Method of Dyeing Yellow or Green.*

The plant called weld, or dyer's weed, affords a most beautiful yellow dye for cotton, woollen mohair, silk, and linen, and is that which is most commonly used by dyers for that purpose, as it gives the brightest dye. Blue cloths dipped in a decoction of it become green. The yellow colour of the paint, called Dutch pink, is got from this plant; the tinging quality resides in the stems and branches, and it is cultivated in sandy soils, because rich soils are apt to lessen its value, by making the stalk hollow.

414. *To stain Wood Green.*

Dissolve verdigris in vinegar, or crystals of verdigris in water; and with the hot solution brush over the wood till it be duly stained.

415. *To stain Horn to imitate Tortoise Shell.*

The horn to be stained must first be pressed into proper plates or scales, or other flat form. The following mixture must then be used:—

Take of quick-lime two parts, of litharge one, and temper them to the consistence of a soft paste with a soap ley. Put this paste over all the parts of the horn, except such as are proper to be left transparent, in order to the greater resemblance of the tortoise shell. The horn must then remain thus covered with the paste till it be thoroughly dry: when the paste being brushed off, the horn will be found partly opake and partly transparent in the manner of tortoise shell; and when put over a foil, will be scarcely distinguishable from it. It requires some degree of fancy and judgment to dispose of the paste in such a manner as to form a variety of transparent parts, of different magnitude and figure, to look like nature. This may be done by mixing whitening with some of the paste to weaken its operation in particular places, by which spots of a reddish brown will be produced, that if properly interspersed, especially on the edges of the dark parts, will greatly increase as well the beauty of the work as its similitude to the real tortoise shell.

416. *Substitute for Verdigris, in dyeing Black.*

Saturate two pounds of vitriol of copper with a strong alkaline salt (American potashes, when to be procured, are recommended). The vitriol will make about an equal weight of dry ashes. Both the vitriol and the ashes are to be previously dissolved apart. When this proportion is mixed, well stirred, and suffered to stand a few hours, a precipitate will subside. Upon adding a few drops of the solution of ashes, if the mixture be saturated, the water on the top of the vessel will remain colourless; but if not, a blue colour will be produced, upon which add more ashes; there is no danger in its being a little over saturated with ashes. Take care to add the solution of ashes to that of vitriol by a little at a time, otherwise the effervescence which ensues will cause them to overflow the vessel: these four pounds of vitriol of copper and ashes will be equal to about the same weight of verdigris, and should be added to the other liquors of the dye at different times, as is usual with verdigris.

The black, thus dyed, will be perfectly innocent to the goods, rather tending to keep them soft than corrode them, particularly hats, in which there is the greatest consumption of verdigris.

For those who are constantly using verdigris, it would be proper to have a vessel always at hand, containing a saturated solution of vitriol of copper, and another with a saturated solution of ashes, ready to mix as they are wanted; for they do not answer so well if kept long.

417. *Another Substitute for Verdigris.*

Take one part of the very best sal-ammoniac, one quarter part of oil of vitriol, one half part of aquafortis, one quarter part of muriatic acid, and twelve parts of cold spring water, which, when thoroughly mixed together, is to be put into sheets of copper, of any size, turned up at the edges about half an inch all the way round, to prevent the mixture from running off. The mixture is then to be stirred well up every two or three hours, until the same is discovered to be of a green or bluish cast or body. The mixture must then remain a few hours, until it is settled, and the water at top appears perfectly clear, which will happen sooner or later, it depending upon the temperature of the atmosphere. The water must then be carefully poured off, leaving the sediment at the bottom. It must be then put into any vessel of sufficient size, and if it is thoroughly prepared, the paint will bear washing in water to free it from dirt, &c. after which washing, the water must be poured from the paint. The paint may then be taken and prepared in lumps, by putting the same into moulds of any size that may be convenient, observing afterwards to place the same in a mild warm room. When it is quite dry, it may be ground into powder with ease, or remain in the lumps, as may be convenient; it is then fit for use.

Remark.—This preparation is much clearer than verdigris made by stratifying copper-plates, or by solution with the impure vinegars which pay no duty.

418. *To make an illuminated or Phosphoric Bottle, which will preserve its Light for several Months.*

By putting a piece of phosphorus, the size of a pea, into a phial, and adding boiling oil until the bottle is a third full, a luminous bottle is formed; for, on taking out the cork, to admit atmospheric air, the empty space in the phial will become luminous.

Whenever the stopper is taken out in the night. sufficient light will be evolved to show the hour upon a watch; and if care be taken to keep it, in general, well closed, it will preserve its illuminative power for several months.

419. *A cheap and simple Process for Painting on Glass, sufficient for the Purpose of making a Magic Lanthorn.*

Take good clear resin, any quantity, melt it in an iron pot; when melted entirely, let it cool a little, and, before it begins to harden, pour in oil of turpentine sufficient to keep it liquid when cold. In order to paint with it, let it be used with colours ground with oil, such as are commonly sold in colour shops.

420. *Useful Property of common Glue.*

Common glue, dissolved with linseed oil, will resist the weather. The glue should be melted with a very little water, before the oil is added.

421. *To make Size from Potatoes.*

One of the beneficial uses of potatoes, not perhaps generally known, is, that the starch of them, quite fresh, and washed only once, may be employed to make size, which, mixed with chalk; and diluted in a little water, forms a very beautiful and good white for ceilings. This size has no smell, while animal size, which putrifies so readily, always exhales a very disagreeable odour. That of potatoes, as it is very little subject to putrefaction, appears, from experience, to be more durable in tenacity and whiteness; and, for white-washing, should be preferred to animal size, the decomposition of which is always accompanied with unhealthy exhalations.

422. *To make Patent Paste.*

Boil a quantity of mealy potatoes, and mash them without peeling; then take as many, and one-third more, of raw potatoes, and obtain the starch or flower from them, by grating them into a vessel of water, and reserving only the finer particles. The mashed potatoes are to be diluted, beat up, and passed through a sieve. They are then to be put into a boiler, and, when nearly boiling, the starch produced from the grated potatoes is to be added, and the whole boiled together about twenty minutes, during which time it must be kept carefully stirred: it is then good paste, and is to be put into a wide vessel to cool.

423. *Bookbinder's Paste.*

Mix wheaten flour first in cold water, then boil it till it be of a glutinous consistence; this method makes common paste. Mix a *fourth*, *fifth*, or *sixth* of the weight of the flour of powdered alum, and if required stronger, add a little powdered resin.

424. *A most excellent Glue.*

Beat an ounce of isinglass to shreds: dissolve it gradually in a pint of brandy, by means of gentle heat, and then strain the solution through a piece of fine muslin. The glue thus obtained should be kept in glass closely stopped. When required for use, it should be dissolved with moderate heat, when it will appear thin, transparent, and almost limpid. When applied in the manner of common glue, its effect is so powerful as to join together the parts of wood stronger than the wood itself is united. This glue dries into a very strong, tough, and transparent substance, not easily damaged by any thing but aqueous moisture, which renders it unfit for any use where it would be much exposed to wet or damp air.

425. *Parchment Glue.*

Take one pound of parchment, and boil it in six quarts of water till the quantity be reduced to one, then strain off the dregs, and boil it again till it be of the consistence of glue.

The same may be done with glovers' cuttings of leather, which make a colourless glue, if not burnt in the evaporation of the water.

426. *To make Lip Glue, for joining Paper, Silk, or thin Leather, &c.*

Take of isinglass and parchment glues, of each one ounce; sugar-candy and gum-tragacanth, each two drachms; add to them an ounce of water, and boil the whole together till the mixture, when cold, is of the consistence of glue; then form the same into small rolls, or any other figure that may be most convenient, and it will be fit for use.

This glue may be wet with the tongue, and rubbed on the edges of the paper, silk, or leather, that are to be joined; and on being laid together, and suffered to dry, they will be united as firmly as any other part of the substance.

427. *Preparation of common Cement for joining Alabaster, Marble, Porphyry, or other Stones.*

Take of bees'-wax two pounds, and of resin one pound, melt them, and add one pound and a half of the same kind of matter, powdered, as the body to be cemented is composed of, strewing it into the melted mixture, and stirring them well together, and afterwards kneading the mass in water, that the powder may be thoroughly incorporated with wax and resin. The proportion of the powdered matter may be varied, where required, in order to bring the cement nearer to the colour of the body on which it is employed.

This cement must be heated when applied; as must also the parts of the subject to be cemented together; and care must be taken likewise, that they be thoroughly dry.

When this composition is properly managed, it forms an extremely strong cement, which will even suspend a projecting body of considerable weight, after it is thoroughly dry and set, and is therefore of great use to all carvers in stone, or others who may have occasion to join together the parts of bodies of this nature.

Melted sulphur, applied to fragments of stone previously heated (by placing them before a fire) to at least the melting point of sulphur, and then joined with the sulphur between, makes a pretty firm and durable joining.

Chips out of corners, and similar little deficiencies in the stone, may also be filled up with melted sulphur, in which some of the powder of the stone has been mixed: but the stone should be previously heated.

428. *Fire Lute.*

For a fire lute, take porcelain clay from Cornwall (not pipe-clay), let it be pounded small, and mixed up to the consistence of thick paint, with a solution of two ounces of borax in a pint of hot water. For want of this peculiar kind of clay, slaked quicklime mixed up in the same manner may be used. This may be kept ready mixed in a covered vessel.

429. *Cold Lute.*

Take equal parts, by measure, of the above clay and wheat flour, mix them to a proper consistence with cold water. This is more tenacious than the first lute, but does not keep so well.

430. *Another.*

A very excellent lute for many purposes may be made by beating up an egg, both the white and the yolk, with half its weight of quicklime in powder.

This lute is to be put upon a piece of linen, and applied as usual. It dries slowly, but becomes very compact, and acquires great hardness.

431. *Blood Cement for repairing Copper Boilers, &c. &c.*

This cement is often used by coppersmiths, to lay over the rivets and edges of the sheets of copper, in large boilers, to serve as an additional security to the joinings, and to secure cocks, &c. from leaking; it is made by mixing pounded quicklime with ox's blood. It must be applied fresh made, as it soon gets so hard as to be unfit for use.

If the properties of this cement were duly investigated, it would be found useful for many purposes to which it has never been yet applied. It is extremely cheap, and very durable.

432. *To restore Cast Iron Furnaces, and Soap Pans, that through Accident or Mismanagement may be cracked.*

Take a small clod of fine new lime, slaked, and finely sifted, mix it up with white of eggs, well beaten, till it is of the consistence of pap or soft mortar, then add to it some iron file dust, and with this composition fill up the inside of the crack, (which will be sufficient) raising a little seam or bead upon it, and it will soon become hard and fit for use.

This experiment completely cured a gentleman's furnace which had a crack fourteen inches long, and he has boiled in it three or four days every week since, without the least inconvenience or prospect of its being again disunited.

433. *Composition for a Cement to resist the Action of Fire and Water.*

Take half a pint of milk, and mix with it an equal quantity of vinegar, so as to coagulate the milk. Separate the curds from the whey, and mix the latter with the whites of four or five eggs, after beating them well up. The mixture of these two substances being complete, add sifted quicklime, and make the whole into a thick paste of the consistency of putty. If this mastic is carefully applied to broken bodies, or to fissures of any kind, and dried properly, it resists water and fire.

434. *A Cement to resist Moisture,*

May be formed by melting by heat, without water, common glue, with half its weight of resin; to which must be added, some red ochre, to give it body; it is particularly useful for cementing hones to their frames.

435. *To make Japanese Cement, or Rice Glue.*

This elegant cement is made by mixing rice flour intimately with cold water, and then gently boiling it. It is beautifully white, and dries almost transparent. Papers pasted together by means of this cement will sooner separate in their own substance than at the joining, which makes it extremely useful in the preparation of curious paper articles, as tea-trays, ladies' dressing-boxes, and other articles which require layers of paper to be cemented together. It is, in every respect, preferable to common paste made with wheat-flour, for almost every purpose to which that article is usually applied. It answers well, in particular, for pasting into books the copies of writings taken off by copying-machines or unsized silver paper.

With this composition, made with a comparatively small quantity of water, that it may have the consistence similar to plastic clay, models, busts, statues, basso-relievos, and the like, may be formed. When dry, the articles made of it are susceptible of a high polish: they are also very durable.

The Japanese make quadrille fish of this substance, which so nearly resembles those made of mother of pearl, that the officers of our East Indiamen are often imposed upon.

136. *Turkey Cement for joining Metals, Glass, &c.*

The jewellers in Turkey, who are mostly Armenians, have a curious method of ornamenting watch cases, and similar things, with diamonds and other stones, by simply glueing them on. The stone is set in silver and gold, and the lower part of the metal made flat, or to correspond with the part to which it is to be fixed; it is then warmed gently, and the glue applied, which is so very strong that the parts never separate. This glue, which may be applied to many purposes, as it will strongly join bits of glass or polished steel, is thus made.

Dissolve five or six bits of mastic, as large as peas, in as much spirits of wine as will suffice to render it liquid; in another vessel dissolve as much isinglass (which has been previously soaked in water till it is swollen and soft) in French brandy or in rum, as will make two ounces, by measure, of strong glue, and add two small bits of gum-galbanum, or ammoniacum, which must be rubbed or ground till they are dissolved; then mix the whole with a sufficient heat. Keep it in a phial, stopped; and when it is used set it in hot water.

437. *Excellent Cement for broken China*

May be made from a mixture of equal parts of glue, white of egg, and white lead.

438. *Cement to mend broken China or Glass.*

Garlic stampt in a stone mortar; the juice whereof, when applied to the pieces to be joined together, is the finest and strongest cement for that purpose, and will leave little or no mark if done with care.

439. *To prepare a Cement for joining broken Glass, China, Earthenware, &c.*

Take two ounces of good glue, and steep it for a night in distilled vinegar; boil them together the next day; and having beaten a clove of garlic, with half an ounce of ox-gall, into a soft pulp, strain the juice through a linen cloth, using pressure, and add the same to the glue and the vinegar. Then take gum-sandarach powdered, and turpentine, of each one drachm, and of sarcocol and mastic powdered, each half a drachm, and put them into a bottle, with an ounce of highly rectified spirits of wine. Stop the bottle, and let the mixture stand for three hours in a gentle heat, frequently shaking it. Mix this tincture also with the glue while hot, and stir them well together with a stick or tobacco pipe, till part of the moisture be evaporated; then take the composition from the fire, and it will be fit for use. When this cement is to be applied, it must be dipt in vinegar; and then melted in a proper vessel, with a gentle heat; and if stones are to be cemented, it is proper to mix with it a little powdered tripoli or chalk; or if glass is to be conjoined, powdered glass should be substituted.

For the uniting the parts of broken china, or earthenware vessels, as also glass, where the rendering the joint visible is not of consequence, the following composition, which is much more easily prepared, may be substituted for the foregoing.

Take an ounce of Suffolk cheese, or any other kind devoid of fat, grate it as small as possible, and put it, with an equal weight of quick-lime, into three ounces of skimmed milk; mix them thoroughly together, and use the composition immediately.

Where the broken vessels are for service only, and the appearance is not to be regarded, the joints may be made equally strong with any other part of the glass, by putting a slip of thin paper, or linen, smeared with this cement, over them, after they are well joined together by it. This method will make a great saving in the case of glasses employed for chemical, or other similar operations.

A cement of the same nature may be made by tempering quick-lime with the curd of milk, till it be of a due consistence for use. The curd, in this case, should be as free as possible from the cream or oil of the milk. On this account it should be made of milk from which the cream has been well skimmed off, or the kind of curd commonly sold in the markets, made of whey, and the milk from which butter has been extracted, commonly called buttermilk. This cement should be used in the same manner as the preceding, and they may be applied to stones, marble, &c. with equal advantage as the compound one above given, and are much more easily and cheaply prepared.

Drying oil, with white lead, is also frequently used for cementing china and earthenware; but where it is not necessary the vessels should endure heat or moisture, isinglass glue, with a little tripoli or chalk, is better.

440. *To stop Cracks in Glass Vessels.*

The cracks of glass vessels may be mended, by daubing them, with a suitable piece of linen, over with white of egg, strewing both over with finely powdered quick-lime, and instantly applying the linen closely and evenly.

441. *Cement for preserving Wood and Brick.*

This composition is formed of the following materials, viz. mineral or coal tar, pulverized coal, (charcoal is esteemed the best) and well fine-slaked lime; the coal and lime to be well mixed together, proportioned at about four-fifths coal and one-fifth lime; the tar to be heated, and while hot, thickened with the mixture of coal and lime, until it becomes so hard that it may be easily spread upon the surface of a board, and not run when hot. Turpentine or pitch will answer nearly as well as tar, and plaster of Paris will answer instead of lime; to be used in the same manner, and in about the same proportions. The cement must be applied warm, and is found to be used easiest with a trowel.

442. *Cement for Wood or Paper.*

Dissolve some isinglass in a small quantity of gin or proof spirit, by a very gentle heat; and preserve it in a bottle for use.

443. *Another.*

Dissolve, isinglass two parts, and gum-arabic, in like manner with the preceding, and keep it in a bottle for use.

VARNISHES.

[*The following original and excellent Observations on Varnishes were first published by Tho. Cooper, Esq. of Northumberland, (North America) in the American edition of Dr. Willich's "Domestic Encyclopedia."*]

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444. *Observations on Varnishes.*

The liquids in which the substances proper for making varnishes are generally dissolved are linseed, nut oil, sunflower oil, oil of turpentine, and spirit of wine. Hence the substances themselves are all of the class of resins. Nut oil is not often used, though being of a clearer colour than linseed oil, it might sometimes deserve the preference. The other essential oils, as rosemary, bergamot, &c. are too dear, and do not dry.

The substances commonly employed are such as form a transparent solution with the solvents above mentioned, and are not liable to be affected by moisture of any kind: since none of the gums, or gum-resins, are fit for the purpose.

The resins usually employed are, copal, amber, mastic, sandarac, lac, (both stick lac and seed lac), pine turpentine from Chios or Venice, common white resin, dragon's-blood, gum-elemi, asphaltum, or Jew's-pitch, and common pitch. To which may be added, elastic gum, or ca-out-chouc, though this is only used at present for balloons.

Oil of turpentine deadens the colour of paints: the varnishes of amber and copal brighten them.

Linseed oil is procured by grinding linseed in mills for that purpose. It is of a brownish colour. Before it can be used it must be made *drying*. The reason that oil will not dry without preparation is either that it contains a quantity of uncombined mucilaginous substance, or a quantity of uncombined acid, or both. I have not seen this anywhere ascertained; Mr. Watt told me it was acid.

The common method of making drying oil, is to put about half an ounce of litharge to each quart of the oil: boil it not hastily or violently, but with a moderate and equal fire, for about two hours, scumming it. If it be boiled too hard it will be burnt, and become brown. Let this rest till all sediment has perfectly subsided, then separate the clean oil, which will grow the clearer and the better for keeping. When it is made perfectly drying, it will have a scum formed at the top. Perhaps white lead would be better to use than litharge.

Poppy oil, is from the seeds of the common poppy.

Nut oil, is the oil expressed in the same manner from walnut. It is made drying in the same manner as linseed oil: and being clearer, is preferable for colourless varnishes.

To make boiled linseed oil colourless, take three or four gallons of oil: add to it about two quarts of fine clear sand, and three or four gallons of boiling water: agitate it for half an hour, separate the oil, and repeat the process with fresh water.

Oil of turpentine is produced by the distillation of common turpentine; the residuum is resin.

Copal, is a resin produced from certain trees in New Spain. The best is the clearest, and such as will glaze a hot tobacco-pipe without blistering.

Amber (Karabe, succinum) is a substance, but whether vegetable or animal is not quite determined, found upon the sea-shores of Polish Prussia. It has been by some thought a resin from trees; by others, a fossil; by others, the indurated excrement of the whale.

Mastic, is a resin produced from a small tree called the Lentisk, growing in the isle of Chio. The bark is cut, and the juice exudes.

Sandarac, is a resin produced in the same way from a species of juniper, growing on the coast of Africa.

Lac, gum-lac, seed-lac, is produced on certain trees of the fig kind, in the mountainous parts of the East Indies, by the perforation of insects in the bark. It has been by some thought a kind of wax produced by the insects themselves.

Turpentine is collected in the Greek isles, by making an incision in the fir-trees: the juice is turpentine. Venice (Chian) turpentine is brought over in large earthen jars.

Common resin, the residuum of turpentine, after distilling it to obtain the essential oil.

Dragon's-blood, a resin of a red colour, produced from certain trees in the East Indies and Madeira, and the Canary Islands.

Gum-Elemi, a resin, the produce of trees growing in the East Indies and Brazil.

Asphaltum, Jew's-pitch. This is a native bitumen found in various parts of the world, of a blackish-brown colour.

Common Pitch is the residuum after the distillation of tar.

Elastic Gum, a substance from the East Indies and the Brazils, having all the properties of inspissated bird-lime, or of the juice of the misletoe.

It dissolves in petroleum and oil of turpentine.

445. *General Observations on making Varnishes of all Kinds.*

1st. As the substances that form varnishes are extremely inflammable, they ought only to be made in a brick or stone room with a floor of the same materials. They should be cautiously kept from a fire that flames; nor should a lighted candle come near them; for the *vapour, particularly of oil of turpentine and spirit of wine, will catch fire at some distance, by means of flame of any kind.* The operator should always have by him a woollen cloth or small blanket in a tub of water to cover the vessel containing the ingredients in case of their taking fire. They can only be put out by thus excluding the air.

2d. The substances should be freed, as much as possible, from impurities of every kind, particularly sandarac, and preserved free from dust. The utmost cleanliness, in and about the vessels, is essentially necessary to good colour and transparency.

3d. The substances, after being broken into pieces, freed from impurities and heterogeneous substances, should be put by themselves in the melting pot. If reduced to powder or very small pieces, they stick to the sides of the pot, and burn and hurt the colour.

4th. All the resins should be kept in vessels well stopt and closed from dust: So of the oils and spirit.

5th. When the varnish is made, it should be left some time for the dregs to settle: then be poured off clear, and then be filtered through silk or lawn.

6th. For goods that are not to be exposed to the heat of the sun, the spirit varnishes will answer: but as sandarac and mastic will melt in the sun, the oil varnishes of copal and amber are the most proper.

7th. Glazed earthen vessels are better than iron; copper is soluble in oil, and therefore is not to be used. The most scrupulous cleanliness is necessary to success.

446. *Of Varnishes with Spirit of Wine.*

Copal-spirit Varnish. This receipt is kept a great secret. Mr. Henry, of Manchester, in England, and the Sieur Watin, at Paris, make it. Henry's is rather coloured.

I have made it, by dissolving copal in a warm place, in any of the following essential oils: bergamot, lavender, orange, lemon, rosemary, of which the last is the cheapest; dilute it with twice the quantity of highly rectified spirit of wine. If the oil of rosemary is much adulterated with oil of turpentine, it will not succeed. Oil of turpentine precipitates the copal; but by twelve hours digestion (in a small retort with a lamp heat) of oil of turpentine on copal, I succeeded in making a perfectly colourless varnish.

447. *Colourless Spirit Varnish of Mastic and Sandarac.*

To one quart of rectified spirit add two ounces of mastic, in drops, and six ounces of sandarac; when well dissolved, add four ounces of pure Venice turpentin.

If it is wanted to be harder, substitute two ounces of gum-lac, half an ounce of gum-elemi, and two ounces of clear white resin instead of the mastic and turpentine. But the colour will not be so good. The first is proper for toilet-boxes, &c. the last for cane, chairs, furniture, &c. which are much handled.

448. *Varnish for Violins and Musical Instruments.*

Spirit of wine one quart, sandarac four ounces, gum-lacca and mastic, each two ounces, gum-elemi one ounce; when all is melted, add two ounces of turpentine.

449. *Gold-colour Varnish.*

Bruise separately four ounces of lacca, as much gamboge, as much dragon's-blood, as much arnotto, and one ounce of saffron. Put each of these into a quart of spirit of wine. Digest them in the sun or in a moderate heat for a fortnight, mix them with clear varnish of sandarac according to the tint you want. Four ounces of aloes dissolved in a quart of spirit will also be a good addition to the above ingredients, and give you more command over the tint you may require.

450. *General Observations on Spirit Varnishes.*

1. A water-bath is the proper heat for spirit varnishes. A sand-bath is liable to be too hot, and embers or coals dangerous.

When the water once boils, keep it boiling till the substances are dissolved. This you will find by stirring it with a glass, or white wood spatula, or a tobacco-pipe. By dissolving salt in the water, you may increase the heat. When your substances are not quite dissolved, never put them on the fire a second time to finish the solution.

Never fill the vessels but about three parts full.

2. Gum-elemi gives consistence to the varnish, but should be used in small proportions. Brilliancy is given by the Venice and Chio turpentine.

3. The turpentine should always be melted separately, when the substances are dissolved: it should be melted in a small quantity of spirit of wine, and then added. After the turpentine is added, give the water-bath six or eight boils, and then take it off, and strain it through a very fine sieve or fine linen. It will be still clearer by standing and repose.

4. The general proportion of sandarac is about ten or twelve ounces to a quart of spirit, and so of the other gums: if others are substituted, the sandarac must be proportionably diminished. The spirits of wine should fire gunpowder.

5. If you want red or black varnishes, dragon's-blood and vermilion, Jew's-pitch and lamp-black, will answer your purpose.

6. Seed-lac makes harder varnish than shell-lac; about ten ounces to the quart is enough.

451. *Oil Varnishes.—General Observations on Oil Varnishes.*

1. Copal and amber are the two principal substances for oil varnishes; as each of them possesses the property of making a hard and transparent varnish, they need not be mixed; but copal should be reserved for the lighter coloured varnishes. Amber, however, is tougher than copal, and a little of it certainly improves copal varnish, if the tinge of colour is no objection.

2. It requires a stronger fire to dissolve copal and amber when mixed with oil, than alone; a strong heat hurts the colour. Melt therefore these resins by themselves, broken into small pieces; employ no more heat than is necessary to melt

them; when melted, add to them the *hot* linseed oil by degrees, stirring as you pour it in; then give a few boilings to incorporate the whole.

3. If you have more than one resin to add, melt the hardest first, otherwise the most fusible will burn before the other is melted.

4. A sand-bath, or bright coals that do not flame, is the proper heat for oil varnishes; but give no more heat than is barely necessary to melt them.

5. The vessels should be glazed earthenware with a cover; and new ones used, for copal varnish especially, every time.

6. When the oil and the resin are incorporated and well stirred together, add your hot oil of turpentine; this should be about double the quantity of the oil employed; but the oil should not be boiling hot when the turpentine is poured in, otherwise it may catch fire. Stir it.

7. Filter or strain the varnish; then let it rest at least forty-eight hours. The sediment will do for a coarser or more coloured varnish of the same kind: the oil mixed with the sediment will tarnish the colour at the second melting.

452. *Copal Varnish.*

Melt slowly one pound of copal; add half a pint of boiling drying oil: when incorporated, add one pint of oil of turpentine made hot. You may add from half a pint to three pints of boiling drying oil, according to the consistence required.

453. *Another.*

Melt in a perfectly clean vessel, by a very slow heat, a pound of clear copal: to this add from one to two quarts of drying linseed oil; when the materials are thoroughly mixed, remove the vessel from the fire, and keep constantly stirring it till most of the heat is gone: then add one pound of oil of turpentine. Strain the varnish through a piece of close linen, and keep it for use. The older it is, the more drying does it become.

454. *Another.*

M. Carendeffez, formerly of St. Domingo, and at present resident at New York, finds that an ounce of good sulphuric æther, and an ounce of copal in gross powder, mixed together in a well stopped bottle, and placed in a moderate sand-heat or water-bath, form a perfect solution. M. C. remarks, that the solution, though not very cheap, affords a fine and brilliant varnish, and the process is so easy as to be repeated by any person, though of very moderate skill.

455. *Gold-colour Varnish, or Lacker.*

Take eight ounces of amber, two ounces of lacca; melt them; add eight ounces of drying oil; then add oil of turpentine coloured with gamboge, arnotto, saffron, and dragon's-blood, according to the tinge you want.

456. *Black Japan.*

Melt eight ounces of amber; melt (separately from the amber) four ounces of asphaltum, and four ounces of resin: when melted, add eight ounces of boiling oil, and then sixteen ounces of oil of turpentine; then stir in from half an ounce to one ounce lamp-black, and give it another boil or two.

457. *Common Varnish.*

One pound of resin, one ounce gum-elemi, eight ounces drying oil, and sixteen ounces oil of turpentine.

458. *Varnishes with Turpentine alone.*

Oil of turpentine will dissolve any of these resins, except copal and amber; but it does not make so good varnish as when mixed with boiled oil.

459. *Common Turpentine Varnish*

Is frequently made by dissolving one pound of turpentine, or about ten ounces of resin, in oil of turpentine alone.

460. *Elastic Gum Varnish.*

Cut the gum into small pieces, and digest with it thirty-two parts of pure oil of turpentine for twenty-four hours in a warm place. Rosemary, lavender, and other essential oils also dissolve it. So does nitric æther. If softened by boiling in water, or still more in a solution of alum, it may be joined.

461. *Varnishes of Gums.*

Gum-tragacanth and gum-arabic may be dissolved in water; or the first in brandy. *Ichthyocolla* (isinglass) is best dissolved in brandy or whisky.

462. *Elastic Gum (see p. 207.)*

Size—From diluted glue; from white leather cuttings.

Fish Size—Boiled eel skins.

463. *Martin's Copal Varnish.*

In a large gallon earthen pot, with a cover like a chocolate pot, melt four ounces Chio turpentine: when fluid, pour in eight ounces of amber powdered; set it on the fire a quarter of an hour. Take off the pot; add to it one pound of pounded copal, four or more of turpentine, and one gill of warm oil of turpentine. Increase the heat a little; when it has been on the fire half an hour, take it off, stir the ingredients, adding two ounces of the finest and whitest colophony or resin. Set it again on the fire, and increase the heat till the whole is quite fluid. Remove the pot; let the heat subside a little; have ready twenty-four ounces (about one pint and a quarter) of drying linseed oil, poppy, or nut oil; pour it boiling hot by degrees into your gums and stir them well. When mixed, set it again on the fire, stirring it till it boils up; then take it off and add a quart of turpentine made hot; stir and give it one boil more; then add another pint of turpentine made hot; stir it well, give it one more boil, and it is enough. Strain it; if thicker than linseed oil, thin it with oil of turpentine. Let it stand a month before it is used. It should be made in an open yard, for the frequent practice is very unwholesome.

Great danger will attend the addition of copal, as the same heat which would be required to dissolve the copal would volatilize the turpentine, and take fire if the vapour were directed to the flame.

464. *Amber Varnish.*

Melt eight ounces of Chio turpentine, pour in one pound of powdered amber by degrees, stirring it all the while; set it on the fire for half an hour, then add two ounces of white resin: stop the cover close, and increase the fire till the whole is melted. To this add one pound of hot drying oil; and then by degrees a quart of oil of turpentine. Amber can only be dissolved clear, by melting it with some less glutinous gum. Same process for copal varnish.—*Dom. Enc.* vol. v. (*Philadelphia*) p. 233.

465. *Varnish for coloured Drawings and Prints.*

Take of Canada balsam one ounce, spirit of turpentine two ounces; mix them together. Before this composition is applied, the drawing or print should be sized with a solution of isinglass in water; and when dry, apply the varnish with a camel's-hair brush.

466. *To varnish plaster Casts or Models.*

Take about a quarter of an ounce avoirdu pois, of the finest white soap, grate it small, and put it into a new glazed earthen vessel, with an English pint of water; hold it over the fire till the soap is dissolved, then add the same quantity of bleached wax cut into small pieces: as soon as the whole is incorporated, it is fit for use.

Mode of Application.—Dry the model well at the fire, suspend it by a thread, and dip it in the varnish; take it out, and a quarter of an hour after dip it in again; let it stand for six or seven days, then, with a bit of muslin rolled softly round your finger, rub the model gently, and this will produce a brilliant gloss; but this part of the operation must be done with great care and a light hand, as the coat of varnish is thin.

467. *Another Way.*

Take skim milk, from which the cream has been carefully taken off, and with a camel's hair pencil lay over the cast till it holds out, or will imbibe no more; shake or blow off any that remains on the surface, and lay it in a place free from dust; and when it is dry, it will look like polished marble.

N. B.—This last mode answers equally well with the former, but will not resist the weather.

468. *Varnish for Earthenware.*

To make it white, glass and soda in equal proportion must be pounded together, very fine, carefully sifted, and well mixed. The mixture must next be exposed to a strong heat till it is rendered very dry. It is after that to be put into vessels which have been already baked; it will then be melted, and the varnish is made. It may be applied in the usual manner.

469. *French soft Varnish for Engravers.*

One ounce of virgin's wax, one ounce of asphaltum or Greek pitch, half an ounce of common pitch, and a quarter of an ounce of Burgundy pitch.

N. B.—The celebrated Vivares, the landscape engraver, always used this varnish, in preference to any other.

470. *Varnish for Furniture.*

To one part of virgin's white wax add eight parts of oil of petroleum; lay a slight coat of this mixture on the wood with a badger's brush while a little warm; the oil will then evaporate, and leave a thin coat of wax, which should afterwards be polished with a coarse woollen cloth.

471. *A Varnish for Toilet Boxes, Cases, Fans, &c.*

Dissolve two ounces of gum-mastic, and eight ounces of gum-sandarac, in a quart of alkohol; then add four ounces of Venice turpentine.

472. *Preparation of the true Copal Varnish.*

Take two parts of gum copal reduced to a fine powder; wash it repeatedly in water, to free it from the woody fibres: then introduce it into a flask, and pour over it four parts of pure oil of rosemary; digest the mixture in a gentle heat for three days, or longer; after which, add as much highly rectified spirits of wine as is deemed necessary, and suffer it to remain undisturbed, until the impurities subside; then decant the varnish.

473. *To make Varnish for Oil Paintings.*

According to the number of your pictures, take the whites of the same number of eggs, and to each picture take the bigness of a hazel-nut of white sugar-candy, dissolved, and mix it with a tea-spoonful of brandy: beat the whites of your eggs to a froth; then let it settle; take the clear, put to it your brandy and sugar, and varnish over your pictures with it: this is much better than any other varnish, as it is easily washed off when your pictures want cleaning again.

474. *To make White Varnish.*

Dissolve gum-sandarac and gum-mastic in spirits of wine; leave it to settle for two days; then strain it through a linen cloth, let it stand for some time, pour off the clear liquid, and bottle it for use.

475. *Another, by Dr. Withering.*

Take of gum-sandarac an ounce and a half; mastic, in drops, half an ounce; gum-elemi, a quarter of an ounce; oil of spike lavender, a quarter of an ounce; put them into a half-pint phial, and fill it up with best spirits of wine. Let it stand in rather a warm place, till all the gums are dissolved, and then pour off the varnish into a clean phial, and it will be ready for use.

476. *Excellent Varnish for Umbrellas, &c.*

Articles much exposed to the weather are rendered both sun and rain proof by the following varnish. Boil well together two pounds of turpentine, one pound of litharge in powder, and two or three pounds of linseed oil. When the article is brushed over with this varnish, it must be dried in the sun; after which the greatest heat will not affect it.

477. *A Varnish for preserving Insects, Fruits, &c.*

Take one pound of rectified spirits of wine, and two ounces of white amber; add thereto an ounce of white sandarac and white mastic, an ounce and a half of Venice turpentine; digest the whole in balneo mariæ during forty-eight hours, to an entire dissolution; take out the intestines of the insect you have a mind to preserve; lay them for some days in rectified spirits of wine, mixed with clarified sugar-candy; afterwards besmear them with your varnish till they are transparent as glass: in this manner you will preserve them a long time.

This varnish succeeds equally with vegetables and fruits, which never rot or decay when not affected by the exterior air, as has been observed with regard to cherries, which are preserved perfectly well, by besmearing them with melted white wax.

478. *Method of preparing Linseed Oil Varnish.*

One pound of well pulverized and sifted litharge, four ounces of finely pounded white vitriol, and one quart of linseed oil. Put these ingredients into an iron pan of such a size that it may be only half full; mix them well together, and boil them till the moisture is evaporated, which may be known by a pellicle being formed on the surface, or by the barrel of a quill bursting when thrust to the bottom of the boiling varnish. Then take it from the fire and pour off the clear liquid, taking care to keep back the thick part, which has deposited itself at the bottom. While boiling, it must be stirred several times round, that the litharge may not fall to the bottom; but stir it constantly, else superfluous litharge will be dissolved, and the varnish become too thick.

The composition of amber varnish consists of half a pound of melted or roasted amber, one pound and a half of linseed oil varnish, and two pounds of turpentine oil. The amber and linseed oil varnish are to be mixed together in a deep cast-iron pan, of such a size as to be only one third full, and to be kept over a slow fire till the amber is dissolved, which may be known by its swelling up; the operator therefore must have at hand a large copper, or iron vessel, that the varnish may be held over it in case it should rise above the sides of the pan, and to prevent the loss that would thereby be occasioned.—When the varnish is dissolved, the pan must be taken from the fire; and when the mixture has cooled, the turpentine oil is to be poured into it, continually stirring it. Then let it stand some time, that the coarse undissolved particles may deposit themselves at the bottom; after which pour off the clear varnish, and, having strained it through a piece of linen, put it in bottles for use.

In boiling the varnish, care must be taken that it may not boil over, or catch fire. Should this happen to be the case, it must not be extinguished by water; for this mode would occasion such a spattering, that the operator would be in danger of having his face bespattered with the boiling varnish. The best method, therefore, is to cover the vessel in such a manner as to exclude the air, and for this purpose to have at hand a piece of wood, plate of iron, or any thing else that may cover the vessel and extinguish the flame.

479. *Varnish for Pales and coarse Wood Work*

Take any quantity of tar, and grind it with as much Spanish brown as it will bear, without rendering it too thick to be used as a paint or varnish, and then spread it on the pales, or other wood, as soon as convenient, for it quickly hardens by keeping.

This mixture must be laid on the wood to be varnished, by a large brush, or house-painter's tool; and the work should then be kept as free from dust as possible, till the varnish be thoroughly dry. It will, if laid on smooth wood, have a very good gloss, and is an excellent preservative of it against moisture; on which account, as well as its being cheaper, it is far preferable to painting, not only for pales, but for weather-boarding, and all other kinds of wood-work for grosser purposes. Where the glossy brown colour is not liked, the work may be made of a greyish brown, by mixing a small proportion of white lead, or whitening, or ivory black, with the Spanish brown.

480. *To make Gold Varnish.*

This ingenious process, which is at present employed throughout Europe, in gilding wooden frames, coaches, and various articles, and which was formerly used in the preparation of the *now* old-fashioned leather tapestry, was invented towards the end of the sixteenth century. The composition is as follows:—

Take gum-lac, and having freed it from the filth and bits of wood with which it is mixed, put it into a small linen bag, and wash it, in pure water, till the water becomes no longer red, then take it from the bag, and suffer it to dry. When it is perfectly dry, pound it very fine, because the finer it is pounded it will dissolve the more readily. Then take four parts of spirits of wine, and one of gum, reduced, as before directed, to an impalpable powder, so that for every four pounds of spirits you may have one of gum; mix these together; and, having put them into an alembic, graduate the fire so that the gum may dissolve in the spirits. When dissolved, strain the whole through a strong piece of linen cloth; throw away what remains in the cloth, as of no use, and preserve the liquor in a glass bottle, closely corked. This is the gold varnish which may be employed for gilding any kind of wood.

When you wish to use it, you must, in order that the work may be done with more smoothness, employ a brush made of the tail of a certain quadruped called Vari, well known to those who sell colours for painting; and with this instrument dipped in the liquor, wash over gently, three times, the wood which has been silvered. You must, however, remember, every time you pass the brush over the wood, to let it dry; for, in so doing, your work will be extremely beautiful, and have a resemblance to the finest gold.

481. *Varnish for Drawings, Prints, &c.*

Boil four ounces of isinglass, in small pieces, in one quart of brandy or spirits of wine, expose it to the air, and when only warm wash over the print or drawing (which should be previously mounted), and let it stand till quite dry; then wash it again at a small distance from the fire, or it will blister, which repeat two or three times; then go twice over with the following white varnish:—Take of gum-sandarac and gum-mastic equal parts; dissolve them in spirits of wine; let them settle two days, then strain through a linen cloth, and pour the clear liquor into a bottle for use.

482. *To make a Lacquer for Brass.*

Take eight ounces of spirits of wine, and one ounce of arnotto, well bruised; mix this in a bottle by itself; then take one ounce of gamboge, and mix it in like manner, to the same quantity of spirits; also bruised saffron, steeped in spirits, to nearly the same proportion. After this take seed-lac varnish, what quantity you please, and you may brighten it to your mind by the above mixture: if it be too yellow, add a little more from the arnotto bottle; and if it be too red, add a little more from the gamboge, or saffron bottle; if too strong, add a little spirits of wine, &c. Thus you may temper lacquer or varnish to what degree of perfection you please.

483. *To make Chinese Varnish.*

Take of gum-lac in grains four ounces: put it into a strong bottle, with a pound of good spirits of wine, and add about the bulk of a hazel-nut of camphor; allow them to mix in summer in the sun, or in winter on hot embers, for twenty-four hours, shaking the bottle from time to time; pass the whole through a fine cloth, and throw away what remains upon it. Then let it settle for twenty-four hours, and you will find a clear part in the upper part of the bottle, which you must separate gently, and put into another phial, and the remains will serve for the first layers.

484. *Varnish to prevent the Rays of the Sun from passing through the Glasses of Windows.*

Pulverize gum-tragacanth, and put it to dissolve for twenty-four hours in whites of eggs well beaten. Lay a coat of this on the panes of your windows with a soft brush, and let it dry.

485. *Seed-Lac Varnish.*

Take spirit of wine one quart; put it in a wide-mouthed bottle, and add thereto eight ounces of seed-lac, which is large grained, bright and clear, free from dirt and sticks; let it stand two days or longer, in a warm place, often shaking it, strain it through a flannel into another bottle, and it is fit for use.

486. *Shell-Lac Varnish.*

Take good spirits of wine one quart, eight ounces of the thinnest and most transparent shell-lac, which if melted in the flame of a candle will draw out in the longest and finest hair; mix and shake these together, and let them stand in a warm place for two days, and the varnish will be ready for use. This varnish is softer than that made of seed-lac, but it may be mixed with it for varnishing wood, &c.

BREWING,

AND MANAGEMENT OF MALT LIQUORS.

487. *Niceties in Malting, the Observance of which will increase the Profits of the Maltster near Ten per Cent.*

In malting barley, the water should be changed oftenest in spring and autumn, when the weather is warm; if barley is left to steep too long at these seasons in the same water, the water will grow slimy, and sometimes sour; the maltster should therefore watch the change of the water, and when he finds it smooth or oily to the touch, or inclining to smell or taste sour, it must be changed immediately.

The common method of changing it, is first to draw off that in which the barley was steeping, and then by pailsful, or pumping, fill the cistern again; but this is a bad way, for when the water is drawn off, the barley lies closer, and is apt to heat, which causes great damage. It is therefore recommended to get a hogshead of water in readiness near the cistern, which should be thrown on the barley the instant the first water is drawn off; and as a hogshead of water is sufficient to wet eight bushels of barley, as many hogsheads, save one, should be afterwards added, as the cistern will wet.

River water is the best, and hard spring water is the worst: in general the water that soonest lathers should be preferred.

A thin-skinned fine-coated barley is the best for making malt; it need not be very full-bodied, but should be quite ripe.

Barley that has grown on land highly manured is not so good as that produced on a land moderately rich without manure; and if the soil is very luxuriant, either by nature or art, the barley will not be fit for the maltster.

It is a good practice to give malt as much drying as possible on the floor; it does not shrink so much as on the kiln, and acquires no foreign taste; when it comes to the kiln, the fire in the furnace should be moderate, but equal.

Brown malt, used in the same proportion as pale, will not make the strongest beer; but the pale malts that are slack dried make a raw, unwholesome liquor, that will not keep.

Maltsters should never buy barley grown on various soils, or even different fields, because the kerns will spire at different times; they should therefore never buy tithe barley. A maltster having bought one hundred quarters of tithe barley, without knowing it, soon discovered it in the malting, and sold it to a hog-feeder for eight-pence a quarter less than he gave, as the least loss he should incur by his bargain.

To discover whether malt has been made of mixed or unripe barley, throw a couple of handsful of it into a bowl of water; stir it gently, and the grains that have not been malted will sink, the half-malted grains will have one end sunk, and so swim in a perpendicular position, and those that are perfectly malted will swim. The best barley will not malt equally well at all times. As soon as housed, before it is in sweat, and after the sweating is over, it will malt well, but not while it is in sweat.

Barley that has been got in early in a very dry season malts but indifferently; but if the same barley is left abroad till rain falls on it to loosen the husks from the kernel, it will malt well, and yield a large increase.

488. *Method of extracting the Virtue of Hops in Brewing.*

The usual method is to put in hops without any preparation, into the strong beer or ale wort; the consequence is, the richer and better the wort is, the less it will partake of the essence of the hops. The rich fat wort sheathes up the pores of the hop, and, as it were, embalms the leaves, so that the beer or ale wort can extract scarcely any part of the necessary quality of the hop; but when it is put into the small beer wort, a fluid of a more thin nature, there the pores are unsheathed, and the small beer is rendered too bitter; therefore the hops, before they are put into the strong drink, should be previously soaked in a pail of hot water.

To confirm the truth of this observation, take a quarter of an ounce of the best green tea, and instead of pouring on it simple boiling water, let the water have the same quantity of sugar boiled in it that would be necessary to sweeten so much tea when made, and you will find that the sweetness of the water will prevent its extracting the grateful bitter of the tea.

489. Cheap and easy Method of Brewing.

One bushel of malt and three quarters of a pound of hops will, on an average, brew twenty gallons of good beer.

For this quantity of malt, boil twenty-four gallons of water; and having dashed it in the copper with cold water to stop the boiling, steep the malt (properly covered up) for three hours; then tie up the hops in a hair cloth, and boil malt, hops, and wort, altogether, for three quarters of an hour, which will reduce it to about twenty gallons. Strain it off, and set it to work when lukewarm.

In large brewings this process perhaps would not answer, but in small ones, where the waste is not so great, and where the malt can be boiled, the essence is sure to be extracted.

490. To make excellent and wholesome Table Beer.

To eight quarts of boiling water put a pound of treacle, a quarter of an ounce of ginger, and two bay leaves; let this boil for a quarter of an hour, then cool, and work it with yeast, the same as other beer.

491. Uses of ground Ivy in Ale, &c.

The leaves thrown into the vat with ale clarify it, and give it an antiscorbutic quality. The expressed juice mixed with a little wine, and applied morning and evening, destroys the white specks in horses' eyes.

492. To make Ginger Beer.

To every gallon of spring water add one ounce of sliced white ginger, one pound of common loaf sugar, and two ounces of lemon-juice, or three large table-spoonsful; boil it near an hour, and take off the scum; then run it through a hair sieve into a tub, and when cool, (viz. 70) add yeast in proportion of half a pint to nine gallons; keep it in a temperate situation two days, during which it may be stirred six or eight times; then put it into a cask, which must be kept full, and the yeast taken off at the bunghole with a spoon. In a fortnight add half a pint of fining (isinglass picked and steeped in beer) to nine gallons, which will, if it has been properly fermented, clear it by ascent. The cask must be kept full, and the rising particles taken off at the bunghole. When fine (which may be expected in twenty-four hours) bottle it, cork it well, and in summer it will be ripe and fit to drink in a fortnight.

493. *To make Yeast or Barm.*

Mix two quarts of soft water with wheat flour, to the consistence of thick gruel, or soft hasty pudding; boil it gently for half an hour, and when almost cold, stir into it half a pound of sugar, and four spoonsful of good yeast. Put it into a large jug, or earthen vessel, with a narrow top, and place it before the fire, so that it may, by a moderate heat, ferment. The fermentation will throw up a thin liquor, which pour off and throw away; the remainder keep for use in a cool place in a bottle, or jug tied over. The same quantity of common yeast will suffice to bake or brew with. Four spoonsful of this will make a fresh quantity as before.

494. *Substitute for Barm or Yeast.*

[This receipt was presented to the October Meeting of the Manchester Agricultural Society, held at Altringham, 1809, by Charles Lownds, Esq. when it was ordered that a copy should be printed for each member.]

Boil two ounces of hops in four quarts of water twenty minutes; strain it, and whilst hot stir in half a pound of flour; when milkwarm, mix half a pint of good ale yeast, or a pint of this mixture, which you should always reserve to keep a supply. When nearly cold, bottle and cork it well, and keep it for use in a cool place; if too warm, it would be apt to fly; you will judge of this by the season of the year; observe to fill the bottles only two-thirds full.

When used, put of it into the flour you intend for bread, in the proportion of a pint to twenty-four pounds, with water to make it of a proper warmth; mix a little of the flour with it in the middle of the mug, or kneading vessel: it must be covered close, and set in a tolerably warm place all night. Knead it well in the morning, and let it stand some hours longer to rise. It should be eighteen or twenty hours from the first putting together, before your bread is set into the oven.

495. *To make Yeast in the Turkish Manner.*

Take a small tea-cupful of split or bruised peas, and pour on it a pint of boiling water, and set it in a vessel all night on the hearth, or any warm place. The next morning the water will have a froth on it, and be good yeast, and will make as much bread as two quartern loaves.

496. *Easy Method of preserving Yeast.*

Yeast may be preserved for a considerable time, by coating a board with a whiting-brush, allowing the coat to dry; then putting on another, which is in like manner to dry; and so a third, and any number of successive coatings, which, when perfectly dry, will keep vigorous for a long time. Another method is to whisk the yeast until it becomes thin, and then to lay it upon a dry platter or dish, repeatedly, with a soft brush as above-mentioned. The top is then to be turned downwards to keep out the dust, but not the air which is to dry it. By this method it may be continued till it be two or three inches thick, when it may be preserved in dry tin canisters for a long time good. When used for baking, a piece is to be cut off, and laid in warm water to diffuse or dissolve, when it will be fit for use.

497. *To make artificial Yeast.*

Boil potatoes of the mealy sort till they are thoroughly soft; skin and mash them very smooth, and put as much hot water as will make the mash of the consistency of common beer yeast, and not thicker. Add to every pound of potatoes two ounces of coarse sugar or treacle, and when just warm, stir in it for every pound of potatoes two spoonsful of yeast; keep it warm till it has done fermenting, and in twenty-four hours it may be used. A pound of potatoes will make about a quart of yeast, and when made will keep three months. Lay your bread eight hours before you bake it.

N. B. Instead of water and sugar in the above receipt, beer has been used, not bitter nor strong, in the same proportion, and with equal if not better success.

498. *Usefulness of the common Hazel-nut in Brewing.*

In countries where yeast is scarce, it is a common practice to take the twigs of hazel, and, twisting them together so as to be full of chinks, to steep them in the ale-yeast during its fermentation; they are then hung up to dry, and at the next brewing they are put into the wort instead of yeast. In Italy the chips are frequently put into turbid wine, for the purpose of clearing it, which is effected in twenty-four hours.

499. *To extract the Essence of Malt for Brewing.*

After brewing, when the grains are done with, strew a small quantity of unslacked lime over the same, with two or three roots of horse-radish. This will draw out all the remaining goodness from the malt, and make a small quantity go farther than is generally supposed.

DISTILLING.

500. *A cheap Refrigerator or Condenser.*

A short, somewhat flat vessel, two yards in length, nine square feet surface, with the same quantity of cold water, has a greater cooling power than a worm of five spiral turns and six yards length; and if there be a small pipe to connect the still and the condenser, the condensing water will continue cold a much longer time.

501. *To cure Spirituous Liquor of bad Flavour.*

If common raw spirits be agitated with charcoal, they will be deprived of their bad flavour; but if kept in the cask long afterwards, are very apt to resume the old flavour.

502. *Improvement of the Smell and Taste of common ardent Spirits.*

By distilling eight ounces of common ardent spirits, (corn or malt spirits) over one ounce of charcoal-powder, the smell and taste are considerably improved.

503. *To improve the Flavour of Malt Spirits.*

The flavour of malt spirits is said to be highly improved, by putting three ounces and a half of finely powdered charcoal, and four ounces and a half of ground rice, into a quart of spirits, and letting it stand during fifteen days, frequently stirring it; then let the liquor be strained, and it will be found nearly of the same flavour as brandy.

504. *Eau de Cologne.*

Mix rectified spirit of wine, thirteen pounds; Hungary water, three pounds and a half; spirit of wine distilled from balm leaves, two pounds; essence of bergamot, three ounces; orange flower-water, one pound; essence of lemon, an ounce; and essence of rosemary, a drachm. Shake this mixture well together in a large bottle, and the liquor is made. It will in this ready way be very delicate, and answer every requisite purpose; but if superior delicacy be desired; it may be obtained by distilling the above mixture, or rather double the quantity of each ingredient in a gentle sand heat, so as to draw off all the liquor, with the exception of only two quarts left behind in the still.

505. *Lavender Water.*

One ounce of oil of lavender, one drachm of essence of bergamot, sixty drops of oil of ambergris, and a pint of spirit of wine.

506. *Excellent Lavender Water.*

In a pint of spirit of wine, put three drachms of the essential oil of lavender, and one drachm of essence of ambergris.

507. *Rose Water.*

Gather the petals of the damask rose on a dry day when they are full-blown; to a peck of the leaves put a quart of water, put them into a cold still, make a slow fire under it; the slower you distil the rose water the better it will be. Bottle it, and in two or three days cork it.

508. *Eau de Luce.*

In four ounces of rectified spirit of wine, dissolve ten or twelve grains of white soap. After filtering the solution, dissolve in it a drachm of rectified oil of amber, and then filter it again.—Mix, in a flint glass bottle, as much of this solution with the strongest spirit of sal-ammoniac, or pure volatile alkali, as will, when sufficiently agitated, produce a beautiful milky fluid. Should a cream form on its surface, more of the spirit of wine must be added.

509. *Hungary Water.*

Take a sufficient quantity of the flowers and leaves of rosemary, infuse them an hour in spirits of wine, and draw off the Hungary water by distillation in a refrigeratory.

510. *French and much improved Method of making Hungary Water.*

Take a large handful of the flowers and tender leaves of rosemary, with a few of thyme, lavender, and sage; then putting all of them into a thick glass bottle, pour in a quart of spirits of wine; afterwards, merely to give it colour, put in a few pieces of alkanet-root, instantly recork the bottle, and shake it briskly till the water obtains a purple tinge. This is far preferable to any other Hungary water, and particularly so if it be placed, for at least a month, exposed on sand or gravel to the heat of the sun.

511. *Eau des Carmes.*

Take two pounds of fresh gathered balm when in flower, and cleared from the stalks; four ounces of lemon-peel, pared immediately from the newest fruit; eight ounces of coriander seeds; two ounces, each, of pounded cloves, cinnamon, and nutmegs; one ounce of dried and pounded angelica-roots; and ten quarts of highly rectified spirit of wine. Having steeped these ingredients four or five days in the spirit of wine, draw off by distillation in the heat of a water bath, ten quarts. Rectify the distilled liquor by a second distillation in a water bath, drawing off somewhat less than nine quarts. In this rectification, the more volatile, subtle, and aromatic parts of the ingredients alone arise, leaving behind an acrid, bitter, white liquor, loaded only with the grosser oil, and deprived of the specific flavour of the respective articles.

PART III.

HINTS ON DOMESTIC WINE-MAKING.

The high price of foreign wines, and the difficulty of obtaining them genuine at any price, have for some time directed a considerable share of the public attention to our English fruits; and great improvements have been introduced into the practice of domestic wine-making. Though it is manifestly impossible to rival the delicious nectar of the vineyards of Champagne, Burgundy, and Bordeaux—for no management can make a grape of a gooseberry—yet, a very tolerable imitation of these wines may be obtained from our own fruits, superior in every respect to the spurious compounds which are generally sold as French wines.

It has been commonly said, that wines made from English fruits are unwholesome; but there is nothing in their chemical qualities, or medical properties, as far as we are acquainted with them, to justify this assertion. And, indeed, when we read Mr. Accum's account of the deleterious adulterations employed in the composition of that factitious farrago, which is imposed upon us under the taking title of *Old Port*, we may safely conclude, that on the score of wholesomeness at least, the balance will be in favour of our domestic liquors.

In the management of the domestic wine-press, we must take the grape as the standard to regulate all our proceedings. For the grape contains within itself all the principles requisite for making wine, in a proportion which disposes its juices naturally, and of themselves, to undergo a regular and complete fermentation. With other fruits the case is different, and all we can do is, to make the compound mixture with which we have to deal as like the grape mass as possible.

The substances essential to the vinous fermentation are found to be sugar, vegetable extract, the tartarous or malic acids, and water. In comparing the grape with the fruits generally employed in making wine, we find these ingredients in very different proportions. The grape is distinguished from all other fruits, by the superabundance of tartar and sugar. Our common fruits, on the other hand, are not only deficient in these two most essential ingredients, but they are also characterised by an excess of malic acid; which, when it exists in an undue proportion, is most injurious to the production of wine. Indeed, the principal difference between wine and cider consists in the predominance of the malic acid * in the latter liquor.

It is evident therefore, at first sight, that an *arti-*

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* As a corrective of the predominance of the malic acid in our English fruits, it may be useful to wash the inside of the *vat*, or vessel in which the wine is made, with lime-wash, which should be applied hot, immediately after the lime is perfectly slaked. This custom is adopted from the practice in the making of sherry, where lime is added to the grapes, for the same purpose of neutralizing the malic acid.

ficial process is necessary to produce a vinous liquor from fruits, whose nature is so different from the grape; and it is to this point, namely, to the obtaining a vinous liquor, that our care should in the first instance be confined. Colour and flavour are secondary considerations, and may be left till a later stage in the process. In the first place then, the deficiency of saccharine in our own fruits, makes it indispensable to add a portion of sugar; and it may be laid down as a general rule, that the strength of the wine will depend upon the quantity of sugar added to the mass *before fermentation begins.* It would be difficult to lay down any rule to regulate the proportion of sugar; though some rule may be collected from the fact which has been stated, that two pounds of sugar, added to a compound containing all the other ingredients necessary to a complete fermentation, will produce a liquor equal in strength to the lightest class of Bordeaux wine; three pounds will make it as strong as Hermitage; and four pounds will increase its strength to an equality with Bronte, or Cape Madeira. In supplying the other defect of English fruits, by the addition of tartar, it will be desirable to employ the crude salt in preference to the cream of tartar, because the crude tartar, containing as it does some portion of the natural leaven of wine, will become a substitute, in some measure, for the yeast of beer, which is so often and so improperly used in promoting fermentation. The dose of tartar may vary according to the greater or less sweetness of the fruit;—the sweetest requiring the largest quantity, from two to four pounds of tartar to a hundred pints of liquor. These additions of sugar and tartar must be made before fermentation begins; but it is upon the skilful management of the fermenting process, that the quality of the wine will ultimately depend.

Without going at length into an account of this mysterious process, of which indeed very little is known with certainty, it will be sufficient to remark, that a certain quantity of vegetable matter, commonly distinguished by the term *leaven*, will convert any saccharine solution into an intoxicating liquor. In the grape, the exciting *leaven* necessary to the completion of this process is secreted from its own juices; but in our English fruits it is common to add a portion of artificial *leaven* to quicken the progress of fermentation, and the yeast of beer is in general use for this purpose. This, however, is a most pernicious practice, for yeast cannot but communicate a bad flavour; and it is wholly unnecessary, for the fermentation may be prolonged at pleasure, without having recourse to any artificial *leaven* whatever.

It may not be useless here to describe the appearances which take place during the process of fermentation.

The first symptom is that of small air bubbles, which rise to the surface, and which go on increasing till the whole fluid is in a state of gentle ebullition. The liquor then becomes turbid, from the mixture of foreign matters contained within it, which are now set in agitation. At the same time a separation of the natural *leaven* takes place, part rising to the surface in the form of *scum*, and the rest subsiding to the bottom, and becoming the *lee*.

If it be wished to protract the fermentation, all that is necessary is, to break this *scum* or *head*, and return it again within the fermenting fluid; or by agitating the mixture, to cause the leaven which is deposited at the bottom to unite repeatedly with the rest of the liquor, till the desired effect is produced. This is the use of *rolling* wine, or returning it on the lees to *feed*, as it is called;—it renders the wine stronger and better by re-exciting the languid fermentation.

If the object be to produce a dry wine, the fermentation must be protracted in the manner here directed; if a sweet wine is desired, the fermentation must be checked by carefully separating the *head*, as fast as it rises; and if the wine is intended to be brisk, the fermentation ought to be conducted, as far as it can be done, in a closed vessel *, and the liquor bottled, before the fermenting process is completely finished.

Temperature is a circumstance which should also be attended to, while the fermentation is going on.

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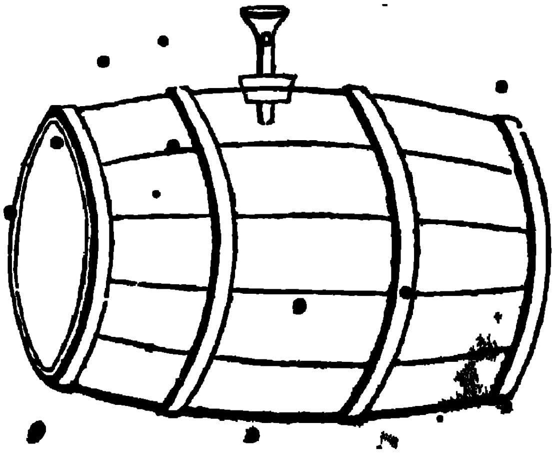
* In dry, or rich and sweet wines, the fermentation may be allowed to go on in the vat; but in wine that is intended to be brisk, the object should be to get the liquor as soon as possible from the vat, into the cask; and then to exclude the atmospheric air as far as it can be done. The simplest way of doing this, and at the same time of allowing the fixed air to escape, is by means of a safety valve of the following simple construction. A common tube of wood or glass may be inserted through the bung, with a lip at the top for the reception of a marble, which will be forced up by the fixed air in its passage, and act as a valve, by closing again of itself, so as to exclude the atmospheric air.



It is said that a temperature about 54 of Fahrenheit is the most favourable to this process; but some latitude may be allowed in this point, and the progress may be stimulated or kept in check by the application of heat or cold.

This will serve to explain the common phenomenon of a renewal of fermentation taking place on the approach of spring. It is during this season of renewed fretting that all wine intended to be brisk should be bottled This too is the best period for adding flavouring substances, and also for the addition of brandy, which will now incorporate best with the wine, and undergo a kind of chemical combination with it

Another circumstance to be noticed, as influencing the fermenting process, is the *quantity* of the fermenting fluid. This process is more rapid and more perfect in large than in small vessels. The fermentation will often be entirely completed in the course of a few days in a large vat, while in smaller quantities, it would require many weeks before it is perfected. And even in small quantities, the same materials will by no means undergo the same changes in equal spaces of time; for instance, two gallons would occupy a much longer time in fermentation than a quantity of ten gallons. The Domestic Wine-maker must therefore be prepared for this difference.

So much for fermentation. Great care must now be taken in securing clean casks; for it is the cask which often gives to our domestic wines a flavour, more disagreeable than the *borachio* of Spain, or the *smack* of the Cape of Good Hope. The cask should be washed with hot salt and water, then with hot water, and lastly with a portion of the fermented liquor in a state of ebullition.

Although the principal part of the fermentation may have been completed in the *vat*, or vessel in which the wine is made, the liquor will still undergo a slow and languid continuation of the same process in the cask.

During this slow fermentation the wine undergoes a diminution, which the wine-maker must be prepared to supply by the addition of fresh liquor, so as to keep it constantly near the bunghole; else the scum cannot be thrown out. As soon as this *fret* subsides, the bunghole should be closed, but a safety valve must be still reserved, by boring a hole with a gimlet, in which a peg is fixed, which must be withdrawn occasionally to enable the *carbonic gas*, or fixed air, to escape; though if the safety valve before described be adopted, this will not be necessary. Attention must still be paid for some weeks, to watch whether the fermentation is renewed; for if this be not done, there will be danger of the bursting of the casks. The following spring will be the period for determining whether you will bottle your wine, or keep it in the wood another year. If you wish a brisk wine, the bottling should not be delayed beyond this period; but wines that have passed through a kind fermentation, and promise well, would be improved by remaining in the cask another year. In this case, the wine should not be drawn off from the lees, but remain undisturbed in the same cask, and French brandy, in the proportion of one gallon of brandy to twenty gallons of wine, must be now added. And if there is any fear that the wine is wanting in richness of flavour, sugar-candy, in the proportion of five pounds to twenty gallons, may be added at the same time.

Dry cold weather should be selected for bottling. If upon examination the liquor should not be found sufficiently fine, a quart of it may be drawn off, in which isinglass, in the proportion of half an ounce to twenty gallons, according to the size of the cask, should be dissolved; and the solution poured in at the bunghole. In the course of about three weeks after this, the liquor will be found sufficiently clarified for bottling. In drawing off the liquor, care must be taken to tap the cask above the lees, or to draw off the liquor by means of a syphon; but the best receipt for bottling is, to send for a *wine-cooper,* who will take care that the bottles are well cleaned, and that no liquor is wasted in the operation, an accident which often occurs without his assistance.

The spring next ensuing after the wine-making is also the best period for mixing wines together. It is difficult to give any general rules upon this subject.

The skill and taste of the mixer will do more than all the rules in the world; and it is certainly very possible, by mixing two liquors together of different flavours, to produce a compound which shall be superior to either. No great skill can be required to effect this, in the common cases of a weak and a strong, a harsh and a sweet, a flat and a brisk wine; and experience and practice will suggest the opportunities of effecting more subtle combinations.

In the colouring of wines, many substances have been used, and it is desirable to select such as may also communicate an agreeable flavour. Red colours are easily obtained from beet-root, logwood, or the berries of the elder; and every variety of yellow may be produced by the use of burnt sugar, which also gives an agreeable bitterness.

There is no end to the materials which have been used to give a flavour to wine. The flowers of elder, cowslips, clove-pinks, and mignonette, are well known. The shavings of *orris-root,* in the proportion of half an ounce to twenty gallons, will be found to communicate an agreeable perfume. The shavings should be tied in a linen bag, and suspended in the cask by a string, so as to be removable at pleasure, if, upon trial, it is found that the flavour is likely to be too predominant.

From what has been said, it will be collected that the great difficulty of wine-making consists in arranging the due proportion of the materials necessary for fermentation, and in the management of the compound during that process. Dry wines, resembling hock, are produced by protracting the fermentation, until the *leaven* shall have converted the whole of the sugar. But this is not easily done in domestic wine-making, owing to the difficulty of balancing these ingredients properly. Sweet wines, on the contrary, are produced by checking the process of fermentation, so that a considerable portion of sugar shall remain imperfectly converted by the action of the leaven. If the common directions given above are not sufficient to check the fermenting process, a simple and efficacious remedy will be found in the *sulphate of potash,* a salt easily procured, a single dram of which is sufficient to suspend the *fretting* of a whole pipe of liquor *. It communicates no taste, and may be managed with the greatest accuracy by regulating the quantity, according to this proportion. Brisk wines are produced, by carrying on the fermenting process in a close vessel, and by bottling the liquor before the fermentation has entirely ceased. This quality also depends much upon the state of the fruit, which, for this purpose, ought to be gathered in an unripe state. The period of bottling has also a considerable effect on this property; and wines, bottled in the month of March, immediately following the autumn in which it is made, will possess it in the greatest degree.

These general observations may be of use to the

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* It will be useful to the *confectioner* to know, that by the use of the same salt, the fermentation of syrups and preserves may also be effectually prevented.

Domestic Wine-maker to direct his experiments; but no directions or receipts can be of service, unless there be skill and judgment in the application of them. And, indeed, after all that care and attention can effect has been done, we often find that the productions of the same receipt are very different. There are so many circumstances upon which the flavour and quality of the wine depend, that no care will ensure equal success from a repetition of the same experiment.

The wines in which we generally fail most are the dry wines, where the fermentation has been protracted. Those in which we are most successful are, the brisk sparkling wines, in imitation of champagne, which are made from the unripe grape, and the unripe gooseberry; and the rich sweet wines, made from ripe gooseberries and currants, and the black currant.

In the first, much depends upon gathering the fruit at the proper moment, just as it is beginning to ripen. In the manufacture of gooseberry-wine, which is perhaps the best of all, the flavour will be much improved, by taking the trouble to exclude the husks, which communicate a strong and somewhat disagreeable taste.

In the last, the flavour of the black currant will be rendered more luscious, by boiling the fruit previous to fermentation; and indeed the same process of boiling might perhaps be extended with advantage to other instances of ripe fruits. But in this as in all other directions, the success of the experiment must depend less upon the rule than upon the taste and discretion of the operator himself.

WINES.

Damson wine.
Ginger wine.
Orange and lemon wines, with honey, &c.

Fine do. with raisins.
Orange wine.
Do. with raisins.
Syracuse wine.
Austrian wine.
English claret.
Frontiniac.
Clary wine.
Red cherry wine.
French cherry wine.
Red or black cherry wine.
Morella cherry wine.
Apricot wine.
Do.
White currant wine.
Do.
Red currant wine.
Red and white currant and raspberry wine.
English champagne.
Raspberry wine.
Barberry wine.
Rich gooseberry wine.
Green gooseberry wine.
Raisin wine.
Elder wine.
Elder flower white wine.
Blackberry wine.
Birch wine.
Spruce wine.
Cowslip wine.
Parsnip wine.
Turnip wine.
Artificial red port.
Tokay.
Red barley wine.
White barley wine.
Walnut-tree wine.
Mead.
Grape wine.
Do.
Cyprus wine.
Capillaire.
Italian capillaire.
Persicot.
English orgeat syrup.
Genuine orgeat syrup.
Orgeat paste.
Nectar.
Syrup of cowslips.
Syrup of nutmegs.
Syrup of cloves, &c.
Syrup of ginger.
French liqueur.
Do. with flowers.
Oil of Venus.
Oil of Cytherea.
Noyeau.
Red ratafia.
White ratafia.
Italian liqueur.
Bergamot water.
Peach and apricot waters.
Liqueur d'oranges.
Persian and Turkish sherbet.
Shrub.
Currant do.
Usquebaugh.
Hypocras.
Vespetro.
Black curaçoa.
White do.
Liquor of cherries.
French cherry brandy, or ratafia.
Wood strawberry brandy.
Gooseberry brandy.

Rich mead.
Red and white mead.
Family wine.
English Hollands.
British punch.
Milk punch.
Italian lemonade.
French black currant brandy.
Raspberry brandy.
Lemonade.
Orangeade.
French whey.
White wine whey.

WINES.

512. *Damson Wine.*

To four gallons of boiling water, add a peck of damsons; stir this liquor twice every day. Let it stand for three days, and then strain the whole through a lawn sieve. Add nine pounds of loaf sugar, and three spoonsful of yeast; after it has worked in a tub for three days, turn it into a cask, and add three quarts of elder syrup. Rack the wine in a fortnight. Put in two lemons, sliced, a quarter of a pound of loaf sugar, rubbed on the peel, and two pounds of raisins, chopped. Stop it close till March, and then bottle it.

513. *Ginger Wine.*

To every gallon of water put two pounds of loaf sugar, and one ounce and a half of grossly pounded ginger, tied in a coarse linen bag. Boil these together half an hour, or as long as any scum continues to rise, which must be carefully skimmed off; when sufficiently boiled, put this liquor into a tub, and on its becoming the warmth of new milk, add the juice and rind of two lemons, and half a Seville orange to each gallon. If ten gallons be made, put in two table spoonsful of yeast, on a piece of toasted bread. Should the wine be made in cold weather, it must be kept in a warm place, the better to promote fermentation, which sometimes does not take place for a day or two. If it ferments freely, tun it the third day, ginger and rinds together, in a cask, just calculated to hold the quantity made; keeping out a small portion for the purpose of preserving the cask full, while it continues working, which must by no means be filled up with any part of what flows over. When it has ceased fermenting, rack it off into another cask; adding to every four gallons a quart of the best brandy, with half an ounce of isinglass, previously dissolved in some of the wine. In one month's time it will be fit to drink, or bottle.

514. *Fine Ginger Wine, with Jar Raisins.*

Divide six gallons of soft water into two parts: then boil one part with ten pounds of good moist sugar, stir it till the sugar dissolves, and well skim it, while boiling, for a quarter of an hour; in the other three gallons put two pounds of the best race ginger, with the rind of two lemons. The ginger and lemon peel having gently boiled, or simmered, for about two hours, till the entire strength of the ginger is extracted, pour both liquids, with the ginger and peel, into a mashing tub; and, after it has stood till the liquor is only lukewarm, add the juice of two lemons, and stir it well. Then, putting in a toast, covered with yeast, wash it well in the liquor, and let the whole stand, two nights, till it has a good head. In the mean time, having ready a seasoned cask, put into it two pounds of fine jar raisins, with a quarter of an ounce of finely shred isinglass; to which add the liquor, with a quarter of a pound of the best race ginger, bruised, for the wine to feed on, and a pint of good brandy. Bung it up close, and let it stand from seven to ten weeks; then bottle it for use. The spring is the best time for making it, but, with proper care, it may be made at any time.

515. Orange Wine.

To ten gallons of water put twenty-eight pounds of loaf sugar, and the whites of six eggs. Boil them together for three quarters of an hour, keeping the liquor well skimmed all the time, and then pour it hot into a tub, or large pan, over the peels of fifty Seville oranges. When it is nearly cold, take three spoonsful of yeast, spread on a piece of toasted bread, and put in the liquor to make it ferment. After it has stood two or three days, pour it from the peels into the cask, with a gallon of orange juice, which takes about a hundred and twenty oranges. Let it remain in the cask till it has done hissing, when the fermentation will have ceased. Endeavour to proportion the size of the cask to the quantity, as it must be kept filled, so as to work out at the bunghole. When the fermentation is over, draw off as much of the wine as will admit one quart of brandy for every five gallons of wine. It will be fit to bottle, or drink from the cask, in four or five months. This wine, if carefully made, according to these plain directions, will be found exquisitely delicious; and were it kept four or five years, would far surpass most of the best foreign wines, as they are usually sold in England.

516. Orange Wine, with Raisins.

Pick, and chop small, a quarter of a hundred weight of fine new Malaga raisins, and, having provided a dozen and a half of the largest and richest Seville oranges, pare off the thin yellow rinds of a dozen, and put the raisins, and rinds, into a tub or large pan. Having, in the mean time, boiled eight gallons of soft water, till reduced to five, and suffered the water to stand a few minutes, pour it hot on the rinds and raisins, stir the whole well together, and let it rest, closely covered, till quite cold. Stir it well, twice a day, for five days, carefully covering it up each time; and on the sixth, strain it through a hair sieve, pressing the mass, as dry as possible, with a large spoon; and put it in a barrel of a proper size, with the thinly pared rinds of the other half dozen oranges, and a syrup, made the preceding day, with the juice of the eighteen oranges, and a pound of powdered loaf sugar. Stir the whole well together, stop it close, let it stand two months to clear, and then bottle it. It will keep three years, and prove the better for keeping.

517. *Orange and Lemon Wines, with Honey, &c.*

Either orange or lemon wine may be exquisitely prepared by the following method:—To every gallon of water, take two pounds of honey, one pound of Malaga raisins, and a large Seville orange, or lemon, with half an ounce of white argol or tartar. The honey to be clarified in the usual way; the tartar to be dissolved in sixteen times its weight of hot water, and added at different stages of the fermentation, a little at a time, stirred into the liquor. Both the orange and lemon wines lose, at a particular age, much of their peculiar flavour, the orange wine approaching the flavour of bergamot, and the lemon that of citron, as they respectively become older. These wines may be made very good, with the same quantity of sugar, instead of honey, or even of refined molasses, deprived of their colour and burnt taste; but certainly honey produces the richest and best wine.

518. *Grape Wine.*

Boil the water, and when cold, add, to every gallon, eight pounds of grapes, gathered just before they are ripe; (the stalks must be weighed with the fruit). Bruise the whole thoroughly well under the water; cover the tub close with a coarse cloth, and let it stand for four days, stirring it two or three times each day; then strain it, and, to every gallon of liquor add three pounds of loaf sugar. Let it be poured into a cask, and be careful to fill up the cask, from time to time, during the fermentation. When that ceases, put to every four or five gallons of wine a quart of white brandy.

519. *Grape Wine.*

The Honourable Charles Hamilton's receipt.

The grapes must hang till they have attained all the maturity the season will give them; they must then be carefully cut off with scissors, and brought to the wine barn, in small quantities, to prevent their breaking, or pressing one another. All the mouldering, or green grapes, must be discarded, and the best grapes picked from the stalks, before they are committed to the press, where they should all be pressed in a few hours after they are gathered. Much will run from them, before the press squeezes them, from their own weight on one another. This running will be as clear as water, and as sweet as syrup; and all of the first pressing, and part of the second, will continue white; the other pressings will be reddish, and should not be mixed with the best. As fast as the juice runs from the press into a large receiver, it should be put into hogsheads, and closely bunged up. In a few hours, the fermentation will begin, which would soon burst the casks, if not guarded against, by hooping them strongly with iron, and securing them in strong wooden frames, and the heads with wedges. In the height of the fermentation, the wine may be often seen oozing through the pores of the staves. These hogsheads should be left, during the depth of winter, in the cold barn, to have the benefit of the frost. When the fermentation is over, which will be easily discovered, by the cessation of the noise and oozing (but, to be more certain, the pegging the cask will show when the wine will be quite clear), then rack it off into clean hogsheads, and carry it to the vaults, before any warmth of weather can raise a second fermentation. In March, examine the hogsheads; if they are not quite fine, they must be fined down with common fish glue, or isinglass, in the usual manner; those which are fine of themselves need not be fined down. All must be bottled, about the end of March; in about six weeks more, the wine will be in perfect order for drinking, and in its prime for rather more than one year: but in the second year the flavour will abate, and will gradually decline, till it loses all flavour and sweetness. Some that was kept sixteen years became very like old hock. The only art ever used to this wine was putting three pounds of white sugar-candy to some of the hogsheads, when the wine was first tunned from the press; but this was only done to produce sweet champagne.

520. *Imitation of Cyprus Wine.*

To four gallons of water, put one gallon of the juice of white elder-berries, pressed gently from the fruit, and passed through a sieve, without bruising the kernels of the berries; then add twenty pounds of loaf sugar, three quarters of a ounce of sliced ginger, and half an ounce of cloves. Let the whole boil together half an hour, taking off the scum as it rises, pour it into a tub, or pan, to cool, and ferment it with ale yeast, on a toast, for three days. Afterwards, put it into a cask, which will just hold the quantity, with a pound of split and stoned raisins of the sun; and, when the fermentation ceases, add five pints of genuine French brandy. It must generally remain in the cask till about the middle of January, to be fine enough to draw off; when it will so much resemble the rich wine, brought from Cyprus, both in flavour and colour, as to deceive the best judges.

521. *Syracuse Wine.*

Put forty pounds of honey to twelve gallons of water; boil this liquor two hours, taking off the scum as it rises. Tun it, before it is cold, with the peel of twenty-four Seville oranges, not thinly pared. Let it stand three or four days, then bung it. This quantity will fill a twelve gallon cask. It must not be tapped till it has stood a year.

522. *To make Austrian Wine, in all Countries.*

Pick red or purple grapes from their stalks, into a pail; then put them into a vat, strewed over with white mustard seed, in the proportion of about half a pint to ten gallons. After bruising the grapes with a wooden masher, the vat must be closely covered, and the mash thoroughly stirred every day. In eight or ten days it is to be pressed, and have the expressed mash, or must, passed with the liquor into the barrel, the height of a hand being left unfilled. It must now be very often stirred, both day and night, with a proper stick, to prevent its farther fermentation. When it becomes quiet and settled, the barrel is to be filled up with more must, but not with old wine, as the mustard meal is necessary. When a large quantity of this wine is to be made, there should be several vats, in none of which the mash ought ever to be more than two feet deep.

This receipt is translated from a celebrated German economical writer, who gives no farther directions, but the barrel is in course to be closed, and the liquor drawn off and bottled in due time, after the usual method.

523. *English Claret.*

Take any quantity of Malaga raisins, chop them very small, put to every pound of them a quart of water, and let them stand in an open vessel, having a cloth thrown over it, for a week or nine days, stirring them well daily. Then, drawing off as much of the liquid as will run, and straining out the rest from the raisins by pressure, tun the whole in a seasoned barrel; and to every gallon of this liquid add a pint of the cold juice of ripe elderberries, which has been previously boiled and skimmed. Let this wine stand, closely stopped, about six weeks; then draw it off, as far as is tolerably fine, into another vessel; add half a pound of moist sugar to every gallon of liquor; and when it gets perfectly fine, draw it into bottles.

524. *Excellent English Frontiniac.*

Take six pounds of raisins of the sun; and cutting them small, pour over them six gallons of water, in which twelve pounds of white sugar have been dissolved, and let the whole boil for an hour before it is suffered to cool. Have ready half a peck of elder flowers, gathered at the time of falling, when they will readily shake off the branches; put them into the liquor, as soon as it grows almost cold; and the next day, add six spoonsful of syrup of lemons, and four of ale yeast. After this wine has fermented two days, put it into a fit cask, and when it has stood two months, bottle it. This, when properly made, and of a good age, highly resembles in flavour the genuine Frontiniac, and as a salutary cordial wine, it can hardly be doubted, from the well known virtues of elder flowers, even surpasses its original.

523. *Excellent Clary Wine.*

Boil nine pounds of loaf sugar in three gallons of water, carefully skimming the syrup all the time; then pour it hot on a gallon of the tops of clary, when in blossom, commonly called clary flowers; cover the vessel so closely, that no steam can escape, and let the infusion stand to cool. When it becomes only the warmth of new milk, stir it well together; and, spreading some good ale yeast over a toast, throw it into the liquid, and leave it to ferment. After it has worked two days, put it into a barrel, with all the flowers of the clary; and as soon as the wine ceases to hiss, stop it up, and let it remain for three months. At the end of that time, rack it off fine, into another cask, adding a pint and a half of brandy; and when it has remained thus, closely stopped, six weeks longer, it may be bottled, or drank. The best imitations of most foreign wines may be improved, by having a portion of clary flowers in their composition: indeed, this is one of the chief secrets in making British wines truly resemble those of foreign countries.

526. *Red Cherry Wine.*

Strip, when full ripe, any quantity of the finest red, or Kentish cherries, from their stalks, and stamp them, in the same manner as apples for cyder, till the stones are broken. Put the whole into a tub, and cover it up closely for three days and nights; then press it in a cyder press, put the liquor again into a tub, and let it stand, covered as before, two days longer. Carefully take off the scum, without in the smallest degree disturbing the liquor, which is to be poured off the lees, into a different tub. After it has thus stood to clear another two days, it must again be cautiously skimmed, and the clear liquid poured off as before. If the cherries are, as they ought to be, quite ripe and sweet, a pound and a half of good sugar will be sufficient for each gallon of juice, which is to be well stirred in, and the liquor again closely covered up, without being any more disturbed till the next day; then pour it carefully from the lees, as before, put it to stand in the same manner, another day; and then, with the like care, pour it off into the cask, or casks, in which it is intended to be kept. The above process must be often repeated, should the lees appear gross and likely to make the liquor fret. When entirely settled, stop it up, for at least seven or eight months; then, if perfectly fine, put it in bottles; if not, drain it off into another vessel, and stop it up for six months longer, before you venture to bottle it, when it will want only age to equal, if not exceed, all foreign wines. It will, however, be best not to drink it till at least ten or twelve months old.

527. *Genuine French Method of making Cherry Wine.*

To make enough wine to fill six quart bottles, take fourteen pounds of cherries, and two pounds of ripe gooseberries, which must be well bruised together; pound two-thirds of the kernels, and add them also. Put the whole into a barrel, with a quarter of a pound of sugar for each quart of the juice. It is necessary that the barrel should be full; and it must only be covered with a vine leaf surrounded by clay, till the wine ceases to ferment, which will probably be in about three weeks. Great care must be taken to keep the barrel always full, by adding to it occasionally fresh juice of cherries. When it ceases working, bung it, and in two months draw off the clear liquor, and put it in bottles for use, in a cool cellar. A very few raspberries might add to the flavour of this excellent wine, but care must be taken not to let them predominate, or be even suspected.

528. *Easy Method of making excellent Red or Black Cherry Wine.*

Bruise twenty-four pounds of the finest ripe cherries, either red or black, first taking away the stalks, and any rotten or unripe fruit; press out the juice, break the stones, and crush the kernels, and let the whole ferment together for twelve hours. Then run the liquid through a large flannel jelly bag, into a vessel placed beneath, containing a pound of finely powdered loaf sugar; forcing, also, with a ladle, or the hands, as much as possible of the juice from the entire mass of mashed fruit and kernels. When the sugar is thoroughly dissolved, put the liquor in bottles, filling each above half up the neck, or within nearly an inch of the cork. This quantity of good cherries will generally make six quart bottles of wine, without dregs, of a fine, deep red colour, more or less bright, according to the sort of cherries used, and will keep well considerably longer than a year, if deposited in a cool cellar. Those who are fond of experiments may flavour with ripe gooseberry-juice, or a few raspberries, or sharpen with the juice of currants, &c. But the cherries alone, particularly if the stones are broken, so as to obtain flavour from the kernels, will produce a wine highly agreeable. It will be fit to drink in two or three months. The small proportion of sugar requisite renders this one of the cheapest, as well as one of the best of all the British wines. It may, indeed, with little or no injury to the colour, be made with good moist sugar, and if even barrelled instead of bottled, will draw clear and well to the last. When the juice is first pressed out, the mass should be wrung as dry as possible in a napkin, before the stones are broken, which, however, being afterwards done, and the kernels bruised, either in a press between boards, or with a mallet, &c. the whole is to be returned into the juice, that it may ferment. This rule is to be observed in making all other wines from stoned fruits, where the flavour of the kernels, either in the whole, or part, is any way desirable.

529. *Rich Morella Cherry Wine.*

Having picked off from their stalks the ripest and soundest morella cherries, bruise them well, without breaking the stones, and let the whole stand twenty-four hours in an open vessel. Then press out all the juice, and for every gallon, add two pounds of fine loaf sugar. Put this wine into a cask, and when the fermentation ceases, stop it close. Let it stand three or four months, then bottle it, and in two months more it will be fit to drink. Some crack the stones, and hang them, with the bruised kernels, in a bag, from the bung, while the wine remains in the cask.

530. *Incomparable Apricot Wine.*

Take eight pounds of ripe apricots, slice them into two gallons of spring water, and add five pounds of powdered loaf sugar. Boil them together for some time, without taking off the scum; then skim it off as it continues to rise, and put it in a clean sieve, over a pan, to save the liquor which comes from it. When the boiling liquor is as clear as it can be made from the dross of the sugar, pour it, with the drainings of the sieve, hot on the kernels of the apricots, which must be put with the stones into the pan, where it is intended the wine should be left to cool. Stir all well together, cover it up closely till it grows quite cool, and then work it with a toast and yeast. In two or three days, when it is found to be settled, fine it off into a cask, leaving it to ferment as long as it will. After it has done working, pour in a bottle of old hock, mountain, or sherry, and stop it up for six months; then, if very fine, bottle it, and keep it twelve months. This is indeed a most delicious wine; and when well managed, little inferior to the best productions of the grape.

531. *Apricot Wine.*

Boil six pounds of loaf sugar, with six quarts of water, taking off the scum as it rises; then put in twelve pounds weight of stoned and pared ripe apricots, and let them boil till tender. The fruit being now taken out, which may either be immediately eaten, or made into marmalade, put in two or three sprigs of flowered clary, and let the liquor boil up once or twice more. When the liquor gets quite cold, bottle it; and in six months it will be fit to drink. This delicious wine, however, like most others, improves by keeping; and though a boiled wine, will continue good two or three years. If at the end of a week any settlement should appear in the bottles, the liquor must be poured off into fresh bottles; all that is not clear being put by itself into other bottles, from whence it may also be separated afterwards, as it grows fine.

532. *White Currant Wine.*

Boil the water, and when cold, add to every gallon seven pounds of white currants, more rather than less, picked, and bruised. Let all stand four days to ferment, then strain it off, and to every gallon of liquor add three pounds and a half of good Lisbon sugar. Let it all remain four days more to ferment; then skim it clean, and fill the cask quite full, so that the fermentation may run over. As soon as the wine becomes perfectly quiet, add to every four gallons of liquor a quart of white brandy. In twelve months the wine may be bottled. When the brandy is added, draw out an equal quantity of the wine; put this little quantity into a stone bottle, add brandy to it, in the same proportion as already directed, and it will be fit for use in a short time.

533. *Another Method.*

Squeeze two sieves of white currants, with the stalks on, straining the liquor through a hair sieve. Put the juice into an eighteen gallon cask. Dissolve half a hundred weight of coarse loaf sugar. When this is also put into the cask, fill it up with spring water. Let it stand open till it has entirely ceased working; then stop it quite close, and it will be ready to drink in six months.

N. B. Pour water on the currants as you squeeze them. The cask must be filled up morning and evening, for ten days, with sugar and water, and half a pint of French brandy must be added. One sieve of currants will yield twenty-four quarts of juice.

534. *Red Currant Wine.*

To eight gallons of water add twenty-four pounds of loaf sugar; boil the syrup and skim it, till the scum disappears. Have ready, picked from the stalks, two gallons of red currants, taking care not to bruise them. Pour the syrup, boiling hot, on the currants. Let it all stand till nearly cold: then add a teacupful of yeast. Let it ferment for two days; then strain it through a sieve, into the cask, and when the fermentation entirely ceases, bung it tight. It will be ready to bottle at the end of two months. Into each bottle put a small lump of sugar.

535. *Red and White Currant and Raspberry Wine.*

Strip the stalks from three gallons of red and two gallons of white currants; put the stalks into one vessel, and the fruit into another. Add to the currants three quarts of red and two of white raspberries; after well bruising the whole of the fruit, to express the juice, let it ferment twenty-four hours. Having, in the mean time, poured a quantity of boiling water over the stalks of the currants, leave them, while the juice is fermenting, to impart a grateful flavour and astringency to the liquid, and afterwards strain off at the rate of four gallons for every five gallons of the strained juice. Having ascertained the just proportions, and amount of the whole (but without mixing the two liquors together), for every gallon of wine to be made put three pounds and a half of the best moist sugar, to the stalk water; boil it up to a syrup, keep it well skimmed, and when cold, mix it with the juice that has fermented, and put them into a cask, seasoned with brandy, leaving a small space to allow for any farther fermentation, and adding two pounds of loaf sugar, with an ounce of isinglass. The loaf sugar and isinglass are to be melted over the fire, in a quart of the wine drawn from the cask, and after getting cold, are to be poured into the cask, mixed with a pint of brandy. Let it be slackly bunged, till it ceases to hiss; and then, adding a pint of brandy for every three gallons of the wine, drive the bung tight, and paste a piece of brown paper over it. After standing twelve months, bottle it. It may, however, be tapped in six or eight months, and bottled at discretion. If the white raspberries should be difficult to get, the red will do very well alone, though the mixture, slight as the difference may appear, is somewhat preferable. If properly made, this is a most excellent British wine.

536. *White Currant Wine, called English Champagne.*

Boil in six gallons of water eighteen pounds of either Lisbon or loaf sugar, for half an hour, carefully taking off the scum as it rises, and pour the syrup, boiling hot, over two gallons of fine, large, white currants, picked from the stalks, but not bruised. On the liquor becoming near the temperature of new milk, ferment it with some good ale yeast; and after suffering it to work two days, strain it through a flannel bag, into a barrel which it completely fills, with half an ounce of well bruised isinglass. On its ceasing to ferment, immediately bottle it, and put in each bottle a lump of double refined sugar.

537. *Raspberry Wine.*

Bruise the finest ripe raspberries with the back of a spoon, and strain them through a flannel bag into a stone jar, on a pound of double refined powdered loaf sugar, for each quart of juice. Stir it all well together, and cover it closely for three days; then, pouring off the clear liquor, put two quarts of good mountain, sherry, or the best raisin wine, to every quart of the raspberry juice; bottle it, and it will be fit to drink in a fortnight.

538. *Barberry Wine.*

Bruise the ripest barberries, picked from their stalks, and to every two quarts of barberries when picked, put a gallon of boiling water. Let it all remain, at least, three days, and be well stirred every morning and evening; then, drawing off and pressing through a sieve all the juice, put it into a seasoned cask, on three pounds of sugar, to every gallon of liquid. When the wine has remained in the cask a few months, bottle it, putting into every bottle a small lump of loaf sugar. Some persons prefer boiling the barberries, and fermenting the strained liquor in an open vessel, for a few days previously to tunning. This is one of the best imitations of port, claret, &c.

539. *Rich Gooseberry Wine.*

Bruise five gallons of ripe gooseberries, and, after boiling three gallons of clear water half an hour, pour the water, hot, on the mashed fruit. Stir the whole well together, cover it closely, and let it stand forty-eight hours, only stirring it two or three times during that period; after the expiration of which, press out all the juice through a large sieve, or horse-hair cloth; then, to every gallon of juice put two pounds of Lisbon, or loaf sugar, and keep stirring it till the sugar is all dissolved. Tun it immediately, in a barrel of the proper size for containing it; and, letting it ferment of itself at the bunghole, (for fruit wines seldom require any yeast) keep filling it up, as it flows over, with some of the liquor reserved for that purpose, in the usual way, and stop it close, with a cloth placed under the bung, as soon as it ceases to hiss. A pint of brandy, however, for every gallon, may be added on bunging it, should it be judged not likely to prove sufficiently strong; this, however, is by no means necessary. At the end of four or five months, if fine, bottle it, putting a small lump of loaf sugar in each bottle: if not quite fine, draw it off into another cask, and let it stand a month longer before it be bottled The longer it is kept well corked, and in a cool situation, the better it is likely to prove; but it will, at any time, be ready to drink.

540. *Green Gooseberry Wine, to imitate Champagne.*

To every pound of gooseberries, when picked and bruised, add one quart of cold spring water. Let the whole stand three days, stirring it three times each day, and keeping the tub closely covered with a coarse cloth. At the end of three days, strain it, and to every gallon of liquor, when strained, add three pounds of loaf sugar. Barrel the wine, and to every five gallons of liquor add a quart of white French brandy. Hang a piece of isinglass in the vessel. Plug it in about half a year, and when the sweetness is sufficiently subdued, bottle it.

N. B. The gooseberries must be full grown, but gathered before they begin to ripen. It has been recommended, in a recent publication, to use only the pulp of the gooseberry, because the skin of this fruit is thought to give the wine a disagreeable flavour.

541. *Raisin Wine.*

To every gallon of water weigh seven pounds of raisins; pick them from the stalks, and put them into a tub; pour the water on the fruit, and let it stand a fortnight or three weeks, stirring it several times a day. Strain it, and press the fruit very dry through hair bags, then put it into a barrel, but do not stop it close. In about four months, rack it, and then put a little fresh fruit, and some brandy, into the barrel. A quart of brandy, and eight or ten pounds of fruit, are sufficient for twenty-five or thirty gallons of wine. When the wine is racked, draw it off into a tub, and pass the sediment that remains through a flannel bag; the head of the barrel must then be taken out, and the barrel rinsed with a little of the wine. After the head is again put in, add the brandy and fruit. Put the bung in for a little time, but not very tight. It will be necessary to refine the wine with isinglass, about three weeks before it is bottled, which should not be in less than a year. One ounce of isinglass, dissolved in half a pint of wine, and stirred into the barrel, will be sufficient.

Before the water is poured on the fruit, it should be boiled with the stalks, and with hops; the latter in the proportion of a quarter of a pound to every thirty gallons of water. Strain the liquor, let it grow cold, and then add it to the fruit.

542. *Elder Wine.*

To a bushel of ripe and picked elderberries put ten gallons of soft water; and when they have soaked a few days, simmer them in the same, with some grossly pounded ginger, and a little allspice, or any more favourite spices, tied in a bag, for at least half an hour; after which, let them boil about a quarter of an hour longer: then, straining off the liquor, and squeezing out as much as possible from what remains of the berries, measure the entire quantity of juice, and to every quart, when a little cool, or only milk warm, put a pound of moist sugar. In the mean time, throw the pressed berries, on their getting quite cold, into some fresh water, to be again pressed for the purpose hereafter mentioned.

The juice being stirred till the sugar is quite dissolved, is to be boiled, with the spice-bag, for about half an hour, well stirred and skimmed all the time. After standing in a tub to cool till only the warmth of new milk, work it with some good ale yeast, spread on a hot toast; and let it stand till the fermentation has thrown up a good head, which will not be more than two or three days. Take away the toast, skim off the head of yeast, and pour the liquor into a well seasoned cask. As the cask must be from time to time filled up, to prevent the wine from fretting or working over, about two gallons of the liquor should be either reserved, or made from the last pressings of the berries, for this purpose. When the hissing is quite gone off, but by no means sooner, a pint of brandy may be added for every six gallons; and two or three days after bung it close, when it will be found fit, either for use or for bottling, in three months.

543. Elder Flower White Wine.

Boil six gallons of the purest spring water; and, when the water has stood till only little more than milk warm, put in twenty pounds of Malaga raisins, chopped small, with the juice and rinds of six lemons, and three ounces of dried elder flowers. Let the whole stand for a fortnight, in a large tub, stirring it at least once every day; and then straining it through a hair sieve, to five pounds of powdered loaf sugar, stir it well to assist the fermentation. Stop it up close for five or six weeks; and if then fine, bottle it. Should it not be fine, put to a quart of the wine two ounces of isinglass; and, when it has stood to dissolve two or three days, put it into the cask, and stir the whole well together: after which, let it stand a fortnight, and it will not only be fit to bottle, but keep good any length of time.

544. *Blackberry Wine.*

Put a quantity of cleanly picked, full ripe blackberries into a vessel, and pour in as many quarts of cold water, which have first been boiled, as there are of fruit. Bruise the berries well, and let the whole stand twenty-four hours, stirring it occasionally during that time. Then press all the juice, and run it through a sieve or jelly-bag, on a pound and a half of sugar, to each gallon of liquid; stir it till thoroughly dissolved; put it in a well seasoned barrel, and adding a little dissolved isinglass, or other fining liquid, let it remain open till the next day, and then bung it. This is a very pleasant wine, and may be bottled in two months.

545. *Birch Wine.*

Boil the fresh sap, as long as any scum rises; and to every gallon of liquor put three pounds of Lisbon sugar. Boil it half an hour, skimming it very clear, and when almost cold, ferment it with a little yeast spread on toast; and let it remain five or six days in an open vessel, frequently stirring it, however, during that time. Then, taking such a cask as the liquor will fill, light a large match, dipped in brimstone, and having put the match into the cask, stop up the smoke till the match be extinguished: immediately on which, with the utmost possible haste, pour in a pint of mountain, old hock, or any other wine, the flavour of which may be most desirable, as it will be imparted to that about to be put in the cask. Rinse it well with the wine; then take it out, pour in the birch wine, and stop the barrel close. Let it remain thus for six months, when, if perfectly fine, it may be bottled. Some put the peel of a lemon, or Seville orange, in the cask; others add a few cloves, and substitute honey for sugar. Many persons, too, bottle birch wine as soon as the yeast has settled, without putting it in a barrel; but, it is not uncommon in this case, to see it burst the stone bottles in which it is usually kept.

The season for obtaining the birch-tree sap is about the end of February, when the buds first swell; if delayed till the leaves open, the juice, which should be thin and clear, will be thick and discoloured.

The method of extracting it, is by boring holes in the body of the tree, and putting in tubes, or fossets, usually made with elder, divested of the pith. If a tree is large, it may be tapped in four or five places at once. The sap may be kept running two or three days, without injury to the trees, and these holes being then stopped with pegs, as much more may be drawn from the same places the next year. If you have not obtained sufficient immediately to commence making the wine, the bottles in which the sap is received from the trees must be corked close, and even resined, and waxed, to prevent its fermentation; but, if possible, the wine should be made without loss of time.

546. *Spruce Wine.*

To every gallon of water take a pound and a half of honey, and half a pound of fine starch. Before the starch is mixed with the honey syrup, it must be reduced to a transparent jelly, by boiling it with part of the water purposely reserved;—a quarter of a pound of essence of spruce must be used to five gallons of water, and when sufficiently stirred and incorporated, pour the wine into the cask. Then add a quarter of a pint of good ale yeast, shake the cask well, and let it work for three or four days, after which, bung it. It may be bottled in a few days, and in ten days afterwards will be fit to drink. When this wine is bunged, a quarter of an ounce of isinglass, first dissolved in a little of the warmed liquor, may be stirred in by way of fining it. In cold weather, the quantity of yeast should be increased: in warm weather, very little ferment is requisite.

547. *Cowslip Wine.*

Boil twelve pounds of loaf sugar, with the juice of six Seville oranges, and the whites of three or four eggs well beaten, in six gallons of water, for half an hour, carefully skimming it all the time. In the mean while put a peck of the finest and freshest picked cowslip flowers into a tub, with the rinds of two of the oranges; and pouring on them the boiling syrup, stir the whole, and leave it to infuse well covered. When nearly cool, spread a thin slice of toasted bread with good yeast, and put it into the tub to excite a fermentation. After it has worked two or three days, strain it, having first procured from the cowslips all their juice, by pressing them through a coarse cloth. Pour the wine into a cask, and after keeping the bung loose for a few days, if you find the wine has ceased to work, drive the bung tight. Let the liquor remain undisturbed for three months, then bottle it, either for present or future use. When the wine is put into the cask, a quarter of a pint of brandy should be added to every gallon, with a quarter of a gill of syrup of citrons, lemons, or clove gilliflowers.

548. *Parsnip Wine.*

The parsnips must be washed, scraped, and cut in thin slices, and to every gallon of water add three pounds of parsnips, boil them half an hour, then press them, and strain the liquor through a sieve. To each gallon of liquor add three pounds of moist sugar; boil it twenty minutes, and let it stand till lukewarm, then put in a toasted crust, with a spoonful of yeast spread upon it, and let it stand ten days, stirring it well every day; then put it in a cask, where it should remain, closely bunged, for twelve-months.

549. *Turnip Wine.*

Pare and slice a quantity of turnips, put them into a cider press, and press out all the juice. Have ready a vessel just large enough, and put into it, for every gallon of turnip-juice, three pounds of powdered loaf sugar, with half a pint of brandy; after the sugar is dissolved, pour in the juice, and cover the bunghole for a week with a piece of paper, to see whether it still ferments, in which case it must not be bunged down. When it has ceased working, stop it close for three months, then draw it off into another cask, and when fine bottle it.

550. *Artificial Red Port.*

(Lord Pembroke's Receipt.)

Mix well together forty-eight gallons of turnip juice, or strong rough cider, eight gallons of malt spirit, or brandy, and eight gallons of real Port wine, adding a sufficient quantity of elderberry juice to colour the wine, and some of the young branches of the elder tree, to give it a proper roughness. Keep it in cask, and bottle about two years before you drink it. This receipt may perhaps be improved, with regard to roughness, by the juice or wine of sloes, and in colour, made to any required tint, by cochineal, logwood, or Brazil wood. French brandy will certainly be better than malt spirit, and perhaps either a good bodied raisin wine, or even a raisin cider, may sometimes, according as excellence or cheapness is the object, be advantageously adopted, instead of rough cider, or the juice of turnips.

551. *English Tokay.*

Pick perfectly ripe, but unbruised grapes, clean from the stalks, break them with the hands, press them, and pass them through a hair sieve into a pan or tub. Put to every gallon four pounds of Belvidere raisins well picked, and chopped small. Let the whole stand twelve days, stirring it twice every day; after which, strain the liquor from the raisins, put it into the cask, stop it close in three days, let it stand about eight months, and then bottle it. It must not, however, be bottled unless perfectly fine.

552. Red Barley Wine.

To a barrel of new table beer, or small ale, add three pounds of molasses, with half a pound, or more, of ground logwood, and two ounces of almond cake. Stir them well with a long stick put in at the bung-hole, and agitate the cask; after repeating this process two or three days, let the wine stand to settle, and then draw it off or bottle it for use. It is commonly drank hot, and if not at first sufficiently sweet, sugar, as well as spices, may be added.

553. White Barley Wine.

To the wort, produced by a bushel of the palest malt, as soon as the fermentation a little declines, add an ounce of yellow sanders, in powder, and half an ounce of almond cake. Only a quarter of the usual quantity of hops must be used; as the aromatic and agreeably pungent taste of this wood, as well as its pleasant scent, will be communicated to the liquor by that quantity, and sufficiently assist in preserving it. This wine must be worked as usual, and prepared for bottling.

554. Walnut-tree Wine.

To every gallon of liquor drawn from the walnut tree add two pounds of sugar, or a quart of honey. Boil this half an hour, skim it well, set it to cool, and when it becomes lukewarm, add a small quantity of yeast. After it has a little fermented, tun it; hanging from the bung a small bag of spice, such as bruised cinnamon and mace, if agreeable to the palate, though none is absolutely necessary. As soon as the fermentation ceases, drive the bung close, and in a month's time it will be ready to bottle. This wine is not calculated for long keeping.

555. *Mead.*

Boil as much water as you design to use; let it cool, and to every six gallons add twenty pounds of honey. Let it boil slowly for some time, and after adding one ounce and a half of hops, let the whole boil till one quarter of the liquor is consumed. Put it into a tub to cool, and when it is milk warm, add to it a slice of bread toasted, and spread with ale barm. When the wine has done working, tun it. If not fine in six months, it should be racked. Add a quart of brandy to a gallon of mead.

556. *Rich Mead.*

Mix well the whites of six eggs in twelve gallons of water; and to this mixture, when it has boiled half an hour and been well skimmed, add thirty-six pounds of the finest honey, with the rinds of two dozen lemons. Let them boil together some little time, and on the liquor's becoming sufficiently cool, work it with a little ale yeast. Put it with the lemon peel into a seasoned barrel, which must be fill'ed up as it flows over with some of the reserved liquor; and when the hissing ceases, drive the bung close. After the wine has stood five or six months, bottle it for use. If intended to be kept several years, put in a pound more honey for every gallon of water.

557. *Red and White Mead, with Raspberries and Currants.*

For every gallon of wine to be made, take one pound and a half of honey, half an ounce of tartar, or Bologna argol, and three quarters of a pound of fruit. If for white wine, white argol should be used with white currants; if for red wine, red argol with red currants or raspberries. Prepare the honey by mixing it with as much water as will, when added to the juice of the fruit (allowing for diminution by boiling, &c.), make the proposed quantity of wine. This being well boiled and clarified, infuse in it a moderate quantity of rosemary leaves, lavender, and sweet briar, and when they have remained for two days, strain the liquor, and add it to the expressed juice of the fruit, put in the dissolved argol, stir the whole well together, and leave it to ferment. In two or three days, put it in a seasoned barrel; keep filling it up, as the liquor flows over; and on its ceasing to work, sink in it a muslin bag of Seville orange and lemon peel, with cinnamon, cloves, and nutmegs, and closely bung the cask. If kept for six months or more in the wood, and at least nine in bottles, this wine will be excellent, whether red or white In a similar way may be made all sorts of fruit wines, thus substituting honey for sugar.

558. *Family Wine.*

Equal parts of red, white, and black currants, ripe cherries and raspberries, must be well bruised, and mixed with soft water in the proportion of four pounds of fruit to one gallon of water. When strained and pressed, three pounds of moist sugar must be added to each gallon of liquid. After standing open three days, during which time it must be frequently stirred, and skimmed as it may require, it must be put in a barrel, and left for a fortnight to work, when a ninth part of brandy should be added, and the whole bunged down. In two or three years it will be rich and valuable.

LIQUEURS.

559. *Capillaire.*

To one gallon of water add twenty-eight pounds of loaf sugar; put both over the fire to simmer; when milk warm add the whites of four or five eggs, well beaten; as these simmer with the syrup, skim it all till no scum remains. Then pour it off, and flavour it with orange-flower water, or bitter almonds, whichever you prefer.

560. *Italian Capillaire Syrup.*

Pick, while they are young, and without seeds, two ounces of the fresh leaves of the maidenhair from their stalks, and pour over them a pint of boiling water. Let all stand, closely covered, eighteen hours; and, then filtering it through paper, add to it two pounds of the purest honey; boil them together a few minutes, and strain the syrup through flannel. Orange-flower water may be used; but when the honey is pure, there needs no addition. By pure honey is meant that which runs freely from the comb, without heat, or pressure, and in this state, it will agree with those who cannot even bear clarified honey; but to those who have a dislike to it in any state, the addition of a small quantity of cinnamon will remove any disagreeable flavour. Scarcely any honey is better than our own pure, spring honey; but that of Italy is thinner, and has a very fragrant smell.

561. *Persicot.*

To two quarts of the best French white brandy add one pound and a half of bitter almonds, blanched and pounded. Let them remain one day in the brandy, shaking the mixture three or four times. Boil one quart of milk, and when it is lukewarm, put into it two pounds of white sugar-candy, pounded. Mix the brandy, almonds, sugar-candy, and milk together, shaking all three or four times in the day. Let it rest for one day; then pass it through a flannel bag, and bottle it.

562. *English Orgeat Syrup.*

Beat very smooth and fine, in a marble mortar, a quarter of a pound of sweet, and half an ounce of bitter blanched almonds; mix with the paste a pint of water; strain all through a cotton bag, and add two table-spoonsful of orange-flower water; then boil a quart of clarified syrup, mix with it the strained liquor, and boil them to a fine syrup. Bottle it while warm, but do not close the bottles with cork and bladder till the syrup is thoroughly cold, nor indeed till the next day. The orange-flower water is rather an improvement on the French original, and renders it perhaps an equally excellent liquor.

563. *Genuine Orgeat Syrup.*

Take half a pound of sweet almonds, two ounces of the four cold seeds, and half an ounce of bitter almonds. Put the almonds into boiling water; and when the skins will come easily off, take them out again; throw them, as fast as they are peeled, into cold water, drain them dry, and pound them with the cold seeds, till the whole becomes quite fine. To prevent their turning to oil, pour into the mortar, from time to time, half a spoonful of water. When they are thoroughly beaten, dilute them with about a pint of lukewarm water, and set the whole in hot ashes, to infuse for three hours; strain it through a coarse sieve, stirring it well with a wooden spoon, to press out all the goodness of the almonds, &c. and then make a syrup with a pound of sugar, exactly as is directed for preparing capillaire syrup, and finish by uniting them together, in like manner, over hot ashes.

A little of this syrup, in pure barley water, forms a delicious liquid.

564. *Orgeat Paste.*

This paste, which will keep twelve months, is nearly as soon made into orgeat as the orgeat syrup. The mode of preparing it in Paris, is by well pounding blanched almonds, with a little water to prevent their turning to oil; then adding half the weight of the almonds in pounded sugar, and mixing both together into a paste.

Of this paste, when wanted, mix a small portion, about the size of an egg, in a pint of spring water, and strain it through a napkin. The usual English mode of making orgeat paste is, by pounding in the same manner, half an ounce of bitter, to a pound of sweet almonds; and boiling a quart of common syrup, till it becomes what is called blow; mixing the almonds with it over the fire, well stirred all the time, to prevent burning, till it becomes a stiff paste; then, on its getting quite cold, putting it in pots, to be used in the same manner as the other.

565. Nectar.

Take half a pound of raisins of the sun, chopped; one pound of powdered loaf sugar, two lemons, sliced, and the peel of one. Put them into an earthen vessel with two gallons of water, the water having been boiled half an hour; and put them in while the water is boiling. Let the whole stand three or four days, stirring it twice a day; then strain it, and in a fortnight it will be ready for use.

566. Syrup of Cowslips.

Pour over a gallon of cowslip-flowers, having the white part cut off, a quart of boiling water which has been reduced from three pints, and set the vessel which contains them on hot embers, to be kept simmering for six hours. Having taken it off, and left it covered to cool and infuse till the following day, put it again over the fire, and let it nearly boil; then, pressing the flowers as hard as possible, add the same quantity of fresh flowers as at first, set the whole again on hot embers as before, and let it stand till the next morning. Being now again heated, but not boiled, press the flowers while hot; and to every pint of the expressed liquor put two pounds of powdered loaf sugar. Lastly, set the whole on the fire, and keep stirring it, till the scum rises; then take it off, skim it clear, again set it on, and stir and skim it, as before; thus proceeding till no more scum will arise. It must on no account be permitted to boil, as in that case it will afterwards candy. Let it stand till quite cold, and then bottle it for use.

567. Syrup of Nutmegs.

Put into a small stewpan three ounces of pounded nutmegs, pour on them a pint and a half of boiling water, and let them boil in it three quarters of an hour. On straining off the liquid, put to it two pounds and a half of sifted loaf sugar, beat up an egg in a little rose, or orange-flower water; set the whole over a clear fire, and carefully take off the scum as it rises, till a good syrup be formed. On its becoming quite cold, mix with it at least half a pint of brandy, put it in a bottle, and keep it closely stopped, in a cool situation for use. It will be found a very convenient article in a family, for many purposes.

568. *Syrup of Cloves, Cinnamon, or Mace.*

All these syrups are made exactly on the same plan.—Take two ounces of either cloves, cinnamon, or mace, well pounded, and put it into a pint of boiling water in a small stewpan. Let it boil half an hour, pass the liquor through a hair sieve, dissolve in it a pound and a half of powdered loaf sugar, clear it over the fire, with the white of an egg beaten to a froth, and a little rose or orange-flower water, and let it simmer gently till the syrup is formed and clear. When quite cold, put it in bottles, which must be closely corked.

569. *Syrup of Ginger.*

Steep an ounce and a half of beaten ginger in a quart of boiling water, closely covered up for twenty-four hours; then, straining off the infusion, make it into a syrup, by adding at least two pounds of fine loaf sugar, dissolved, and boiled up in a hot water bath.

570. *Delicate French Liqueur, called Rossolis Ambré, or Amber Sun-dew.*

Dissolve four pounds of sugar in a gallon of water, boiling up the syrup six times; when having whisked to a froth the white of an egg, with its shell well beaten, put both into the syrup, and boil it once more. Then strain it through a flannel, or cotton bag, and add half a pint of orange-flower water, and the same quantity of good brandy. If wanted to be of the utmost clearness, as the name imports, it should be again filtered, when it will become a pure and delicate liqueur.

571. *French Rossolis, perfumed with Flowers.*

Boil two quarts of spring water, to take off the hardness; then take it off the fire, and when it is only lukewarm, throw in a pinch of the most odoriferous flowers, and let them infuse till the liquid is cold, and the fragrance all extracted. Then take away the flowers with a skimmer, strain the liquid, and add to it a pint of clarified syrup, and half a pint of spirits of wine, and a rossolis, or sundew, will be produced fully equal to the former.

572. *Oil of Venus, a French Liqueur.*

Infuse for a month, in nine quarts of the finest brandy, three ounces of skirret seeds, the same quantity of caraway seeds, four ounces of daucus creticus seeds, four drams of mace, and an ounce of cinnamon, all finely pulverized. Distil the whole in a water bath; and having drawn off six quarts, return the remainder into the alembic and cohobate. On obtaining, by this second distillation, about five quarts of spirit, suffer the fire to go out, and then compose a syrup in the following manner.—Pour a strong decoction of saffron in water, boiled to the thickness of oil, and as hot as possible, on seven or eight pounds of sugar. When quite melted and become cold, pour the spirit on the syrup. This mixture being too thick for filtration with blotting paper, must be run through a cotton bag. When properly made, this is an excellent cordial.

573. *Oil or Cream of Cytherea, a French Cordial Liqueur.*

Take five quarts of spirituous cinnamon water; two large glasses of rose water, well mixed with a pint of usquebaugh; and six drops of the essence of lemon, the same quantity of essence of clove, of essence of gilliflowers, of essence of citron, with two drops of essence of bergamot. These ingredients being well mixed, produce an excellent oil or cream, which is to be clarified with the white of an egg, then placed for six hours in a warm water bath, and filtered in the usual way.

574. *Genuine French Noyeau, as made at Paris.*

In nine quarts of brandy, with a quart of orange-flower water, adding six ounces of loaf sugar for each quart of the brandy, infuse for six weeks whatever quantity of fresh apricot kernels may be judged to impart the most approved flavour. The sugar must be carefully broken into small pieces, and dipp'd into an equal quantity of common water, the moment before it is put in the infusion. That precaution taken, and these directions exactly followed, the whole is to be filtered through a flannel or cotton bag, when this excellent French liqueur will be completed. Malt spirit will not do as a substitute for French brandy, nor even bitter almonds for apricot kernels.

575. *Red Ratifia, as made at Paris.*

Mash together, in a deep pan, three pounds of red cherries, two pounds of very ripe red gooseberries, and one pound of red raspberries; then put the whole into a stone bottle, adding two drams of cloves, half an ounce of cinnamon, two ounces of coriander seeds, two pinches of Florence fennel seeds, two grains of long pepper, a dozen apricot kernels, the same number of cherry kernels, all well pounded in a mortar, and a pint of common syrup. After having well closed the bottle, expose it for at least a fortnight to the heat of the sun; then strain the whole through linen, pressing it, so as to extract all the juice, and put one pint of the best brandy into every two pints of that liquor. After which, again put the bottle which contains it in the sun, where it is to remain fourteen days longer; when, having thrown in a few pounded almonds, strain the liquor through a flannel bag, to render it quite clear. On observing these particulars in all respects, a most perfect red ratafia will be produced.

576. *Paris Method of Making White Ratafia.*

In a pint of common syrup put a quart of the juice of the finest muscadine grapes, boil them three or four times; adding, with a reasonable quantity of uncoloured brandy, two drams of cinnamon, one of cloves, a pinch of coriander seeds, two pinches of Florence fennel seeds, two grains of long pepper, and a dozen apricot kernels, all well pounded in a mortar. Pour the whole into a large stone bottle well stopped, and let it be exposed to the sun, and finally strained till clear, in the same manner as the red ratafia.

577. *Fine Italian Liqueur, called Perfetto Amore.*

Infuse, for twelve hours, the finely shred yellow rinds of four large and fresh Seville oranges, or half a dozen lemons, in a gallon of the best French brandy; with a quarter of a pound of currants, two dozen coriander seeds, as many cloves, some cinnamon, and a very little salt. Then, draw off by distillation two quarts of spirit. Having, in the mean time, made a clarified syrup, with two quarts of water, two pounds of sugar, and the whites of two or three eggs, and combined a small quantity of roche alum with a very little cream of tartar, and some cochineal, in a marble mortar, moistened with boiling water, and strained; mix the whole well together, pass the liqueur through a filtering paper, and keep it in bottles carefully stopped.

578. *Bergamot Water.*

Make a pint of syrup; and when cold, press into it half a dozen fine lemons, with, or without a Seville orange, or two China oranges, adding as much water as may be necessary; then putting in a tea-spoonful of genuine essence of bergamot, run the whole through a lawn sieve, and it is immediately ready for drinking.

579. *Peach and Apricot Waters.*

Both these waters, as well as those of other fruits, are readily made by mixing two or three tablespoonsful of the respective jams with a few blanched and pounded bitter almonds, lemon juice, and cold spring water, with powdered loaf sugar to your taste. On being run through a lawn sieve, these waters are immediately fit to drink.

580. *Fine Cordial Liqueur d'Oranges.*

Steep twelve lemons, thirty oranges, one citron, two sticks of vanilla, and several of cinnamon, with twelve quarts of brandy. Let them infuse, closely stopped, for six weeks. Then take out all the ingredients, and add nine pounds of loaf sugar. When the sugar is dissolved, to promote which the containing vessel must be well shaken every two or three days, filter the liquor carefully through paper and cotton, and put it in bottles. To make a second sort, press the thirty oranges, and pierce the twelve lemons, and the citron, with one fresh stick of vanilla; then put the whole to infuse with three bottles of brandy, and let it remain as before. Strain the liquor; add to it three pounds of sugar, and when the sugar is dissolved, filter and bottle it.

581. *Persian and Turkish Sherbet.*

The method pursued by the Persians, Turks, &c. is to extract the fragrant, rich, and acidulated juices of the finest flowers and fruits, and make them, with the addition of sugar, into what we call fruit jellies or lozenges, which are dissolved in the purest spring water, and thus form the agreeable beverage denominated sherbet. For example, they evaporate the purified juice of citrons in a water bath with a slow fire, till it becomes of nearly the consistence of honey, melting, in the mean time, some finely powdered loaf sugar in a silver dish, and continually stirring it with a flat wooden spoon; when the sugar is very dry, they sprinkle over it, a little at a time, the prepared juice of citron; continuing to stir it till the whole has sufficient moisture to form a paste, which they make into lozenges, and keep in a dry and rather warm situation; in this way they prepare all the acid juices, such as barberries, lemons, gooseberries, &c.: with the less acid and more delicately flavoured fruits they proceed differently, only well heating the sugar in a silver dish, adding to it by degrees the fresh juice, and stirring it constantly till a paste is formed. This must not be made into lozenges till perfectly dry, and they must be put into a box lined with paper, and kept in a dry place. They are variously prepared with orange-flowers, roses, &c. The Persians and Turks are said to prepare a favourite sherbet with violet vinegar, pomegranate-juice, and sugar formed into lozenges.

582. *Shrub.*

To every dozen of oranges put four lemons the juice of which you must run through a hair sieve, to each quart of the juice add a pound and a quarter of sugar; pare the rinds of six oranges and six lemons very thin; put them to steep in some of the rum, and to this quantity of juice, &c. put one gallon of rum: shake the vessel in which you put it every day for ten days; shake it well, and in three weeks it will be fit to bottle; put a cork in the vessel when you first make this liquor. It is sometimes recommended not to put in the rum in which the rinds are infused till you have done shaking the shrub.

583. *Currant Shrub.*

In a quart of rum or brandy put three quarters of a pint of the strained juice of currants, and the rind of half a Seville orange, with a little nutmeg. When it has stood a day or two closely corked, add a pint of white wine, with three quarters of a pound of loaf sugar; and straining it as soon as the sugar is dissolved through a flannel bag, bottle it for use. Red currants will be best for brandy, and white currants for rum: good raisin wine may be used instead of mountain or sherry.

584. *Choicest Green and Yellow Usquebaugh.*

Take a gallon of the best brandy, an ounce of cinnamon, half an ounce of mace, the same of cloves, a quarter of an ounce of nutmeg, the same of ginger, and the rind of a Seville orange; beat the spices in a mortar, and infuse them for eight days in the brandy. Then boil two ounces of sliced and bruised stick liquorice, and a pound of stoned sun or jar raisins, in three pints of water, till reduced to half the quantity; strain the liquid, and dissolve in it two ounces of powdered loaf sugar. Mix this in another vessel, with the clear infusion of brandy and spices. To make half this quantity green, pound sufficient spinach to produce half a gill of juice; mix it with as much water; simmer it slowly over the fire for ten minutes, and when cool, add it to one portion of the usquebaugh; for the other half to be made yellow, steep in brandy or white wine half an ounce of saffron, press it through a soft linen bag, and add it to the remainder of the liquor. Put into each quantity a few drops of warm alum finings, well shake the bottles two or three times a day, for three or four days, carefully giving it vent each time, and in less than a month these cordials will be sufficiently fine, and fit for use.

585. *Hypocras, as made at Paris.*

Put into a quart of the best and strongest red wine half a pound of powdered loaf sugar, half a dram of cinnamon; a pinch of coriander seeds, two white pepper-corns, a little Seville orange-peel, a blade of mace, a small quantity of lemon-juice, and four cloves; the spices, &c. being all previously beaten in a mortar. When the whole has infused three or four hours, add a table-spoonful of milk;

and filtering the liquid through a flannel bag, it will prove excellent for present or future use.

586. *Vespetro, as made at Paris.*

To two quarts of the best brandy add the following seeds; first, grossly pounded in a mortar, two drams of angelica seeds, one ounce of coriander seeds, and a large pinch of fennel seeds and of aniseeds. Press in the juice of two fresh lemons, putting in also their yellow rinds; add a pound of loaf sugar, and well shaking the bottle from time to time, let the whole infuse five days. To render the liquor clearer, pass it through a cotton bag or filtering paper, then bottle it carefully, and cork it closely.

587. *Black Curaçoa.*

In a gallon of proof or superproof white brandy infuse six ounces of the best well dried Seville orange chips, one ounce of dried orange-flowers, slightly bruised, and one ounce of cinnamon, for sixty hours. Strain the liquor through a fine cloth, and add five pounds of boiled sugar, coloured with a quarter or half a pound of sugar, boiled black. Mix it well, and bottle it.

588. *White Curaçoa.*

In five pints of white brandy infuse three ounces of Seville orange-chips, well dried, and half an ounce of cinnamon, for sixty hours. Strain it off and add four pounds of boiled sugar. Mix it well, and bottle it.

589. *Liquor of Cherries.*

One quart of brandy, two quarts of morella cherries, and a quarter of a pound of loaf sugar. Press the cherries, and let the stones be well pounded. Let all lie together in a jar for three days, stirring them often; then run the liquor through a flannel bag till clear.

590. *French Cherry Brandy, called Cherry Ratafia.*

Stone a quantity of the finest, full ripe morella cherries, mix with them a very few raspberries, bruise them well together, put them into a proper vessel, and let them remain four or five days, being careful to stir and press them well against the sides of the vessel two or three times every day, to make them yield all the rich taste of the fruit, as well as impart a fine colour. Then finally pressing out the juice as much as possible, measure it into a stone bottle, and to every three quarts of juice add two quarts of brandy. For each five quarts of this cherry-brandy there must be added three pinches of the bruised kernels of the cherries, and a quarter of a pound of fine loaf sugar. The whole must be infused in the same bottle, with a pinch of coriander seed, and a little cinnamon, and be well shaken every day for a week or more; after which strain it till very fine, through a flannel bag; put it into well corked bottles, and at length deposit it in the cellar, to be kept cool for use.

591. *Wood Strawberry Brandy.*

Fill a large bottle, four parts in five, with freshly gathered wood strawberries, adding as much Lisbon or loaf sugar as will make it pleasant: then fill up the bottle with the best brandy, or if good rum be more easily obtained, that will do equally well. When it has stood six weeks it will be ready for use. At this time, you may pour off the first infusion, and the same strawberries will make a second quantity; the bottle being filled up with brandy or rum, and more sugar, then suffered to stand two months, and at the end of that time strained off by pressure of the fruit.

592. *Gooseberry Brandy.*

Half fill a bottle with the choicest gooseberries, quite ripe; put in a small lump or two of sugar, and fill the bottle almost, but not quite, full with brandy; cork it close, shake it a little once or twice a day, for a few days, and it will be ready for use.

593. *French Black Currant Brandy.*

To each bottle of brandy add a pound of black currants, picked, with a little allspice, and broken cinnamon in a small muslin bag. Put the whole into a large bottle or jar, and cork it closely for six months. Then pour off the liquor, and for each bottle of this liquor add three quarters of a pound of loaf sugar. Put all into the bottle or jar again, cork it closely, and shake it frequently, till the sugar is dissolved; then filtering it through paper, bottle it for use.

594. *Raspberry Brandy.*

Bruise the finest ripe raspberries with a spoon, strain them through a flannel bag into a stone vessel, on a pound and a quarter of double refined sugar for each quart of juice; stir it well, cover it closely for three days, and then pouring off the clear liquor, add to every quart of this raspberry-juice two quarts of good brandy. Bottle it, and in a fortnight it will be ready for use.

595. *Fine English Hollands.*

Take a lump or two of sugar, two tea-spoonsful of oil of juniper, the same quantity of oil of turpentine, and the same of oil of almonds, with twenty drops of oil of vitriol; rub them in a marble mortar, with about half a gill of the strongest spirits of wine, such as will burn dry in a silver spoon, introduced by a little at a time, till the spirit kills, or overpowers all the oily appearances. Then dissolve half a pound of loaf sugar in two quarts of clear water, the water having been boiled, or distilled; and having procured two gallons of rectified malt spirit, or rather of whiskey, mix it first with the combined oils and spirits of wine, and afterwards add the dissolved sugar and water. After stirring the whole well together, put in a tea-spoonful of warm alum finings, shake the whole well together, let it stand steadily to settle and clear, and draw it off, or bottle it for use. Cordial gins of different flavours may be made in a similar way, more or less lowered with boiled or distilled water; but except for the imitation of Hollands, whiskey is not to be used. By judicious combinations of dill and coriander seed, with a very small proportion of liquorice, angelica-root, carraway seeds, ginger, orange or lemon-peel, and a quantity of juniper berries equal to the whole, all pounded in a mortar, boiled in a close vessel for two hours, with water enough to extract their virtues, strained off when cold, and sweetened with clarified or burnt sugar, a richness of flavour may be acquired, far beyond that of any known Hollands, without the use of pernicious ingredients.

596. *Genuine British Punch.*

Procure half a dozen ripe, sound, and fresh lemons, or a proportionate number of limes, and two Seville oranges. Rub off the yellow rinds of three or four of the lemons, with lumps of fine loaf sugar; putting each lump into the bowl, as soon as it is sufficiently saturated with the grated rind. Then thinly pare the other lemons and Seville orange, and put these rinds also in the bowl; to which, adding plenty of sugar, pour a very small quantity of boiling water, and immediately press the juice of nearly all the fruit, followed by a little more hot water. Blend the whole thoroughly with the punch ladle. The sherbet being thus prepared, to make it into genuine British punch, spirit should be added, in the proportion of a bottle of Jamaica rum to every pint of the finest cognac brandy. The above quantity of fruit, with a pound and a half of sugar, will make enough for a bowl that may contain two gallons; the strength, or weakness, must be suited to the general inclination of the company. Pine-apple rum, and capillaire syrup, may be used if convenient.

597. *To make twelve Gallons of Milk Punch.*

Take four gallons of rum or brandy, pare eight Seville oranges, and as many lemons, *very thin.* Steep the peels of both in the spirit for twenty-four hours. Put ten pounds of the best loaf sugar to six gallons of water, with the whites of twelve eggs, beaten to a froth; then boil this syrup and skim it well; when quite cold, put it into the vessel with the spirit, and six quarts and one pint of the clear juice of Seville oranges, one quart of the clear juice of lemons, and two quarts of new milk; shake the vessel enough to mix the liquor, then stop it very close; let it stand two months, and it will be fine and fit to bottle. The vessel must be very sweet and dry. The cock, which must be a wooden one, should be put in the vessel a few days before the liquor is bottled, to prevent shaking it. Either in the cask or in bottles, it should be kept in a very cool place, and March is the best month for making it. Do not press the oranges too closely, or you will give the liquor an unpleasant flavour.

598. *Lemonade (Italian.)*

Two dozen lemons must be pared and pressed the juice should be poured on the peels, and remain on them all night; in the morning add two pounds of loaf sugar, a quart of good white wine, and three quarts of boiling water. When these ingredients are blended, add a quart of boiling milk. Strain the whole through a jelly-bag till it becomes quite clear.

599. *Lemonade.*

One of the best methods of making lemonade is, to prepare a syrup of sugar and water, over a clear fire, skimming it quite clean; to this add the juice of any number of lemons, according to the quantity you wish to make; also some of the rinds.

600. *Rich Orangeade.*

Steep the yellow rinds of six China and two Seville oranges in a quart of boiling water, closely covered up for five or six hours; then make a syrup with a pound of sugar, and three pints of water, mix the infusion and syrup together, press in the juice of a dozen China oranges, and the two Seville oranges from which the rind was taken, stir the whole well together and run it through a jelly-bag; afterwards, if agreeable, a little orange-flower water, with some capillaire syrup, may be added, should sweetness be wanted. Two lemons may be used, as well as the two Seville oranges;

but care should be taken that the flavour of the lemons does not predominate.

601. *French Whey.*

To three pints of boiling milk add a dram of cream of tartar, or a spoonful of vinegar, or a little lemon-juice, enough of either to turn the milk. When the curd is formed, pass the liquor through a lawn or silk sieve, in order to separate it from the curd; set it on the fire till it is milkwarm. Then add the whites of two eggs, well beaten, and a glass of cold water. Boil the whole together, and when half cold, strain it by means of a large glass funnel, through double blotting paper, of a grey, not red colour. If it is wished for milkwarm, plunge the glass or cup in boiling water.

602. *White Wine Whey.*

To one wine-glass of white wine add two wine-glasses of milk. Let them stand for a minute, and then pour upon them half a pint of boiling water, holding the jug that contains the water rather high above the basin in which the whey is made. This should form a strong curd, which will very soon fall to the bottom of the basin, when the whey may be poured from it, but should the curd break, the whey may be strained through a piece of muslin.

PART IV.

A FEW PLAIN DIRECTIONS FOR THE USE AND MANAGEMENT OF DOMESTIC REMEDIES.

The diseases which assail mankind in the different stages of life, are few in number compared with those which are induced by luxury and excess, late hours, violent exercise, and incautious exposure to sudden changes from a high to a low temperature, without proper attention to clothing, &c. &c.

From these causes diseases arise, frequently intractable, and too often destructive of the health and life of the sufferer. But the treatment of diseases is not our present object, for no one who has not gone through a regular course of medical studies, can mark the distinguishing symptoms, select the appropriate remedies, or apply them aptly, promptly, and effectively.

This remark is suggested by frequent observation of the thoughtless and unguarded mode of administering *Domestic Medicines*, (which include many of the most active remedies), by persons totally ignorant of their powers, and wholly incompetent to determine whether good or evil will be the effect of their prescriptions.

The intention, therefore, of the following hints is not to supersede the necessity of calling in medical advice, where such advice is requisite and can be procured; but, by giving a few simple forms applicable to sudden seizures, and common casualties, to limit the domestic practice within its proper bounds.

Families may be so circumstanced, as to be almost out of the reach of medical men, or the distance may be so great, that many hours must unavoidably elapse before assistance can be obtained. Again, there are many complaints familiar to common observation, for which there are simple and effective remedies, and these may safely be intrusted to the heads of families, without any risk of injury to the patient.

If, therefore, domestic practitioners will condescend to observe a few plain directions, and adhere to the simple forms hereafter given, they will have an opportunity of doing much good, without any danger of doing harm; for, in recommending "*ready remedies*," those diseases will be very cautiously noticed, which are difficult to manage from the frequent change of symptoms in their different stages; lest, from the misapplication of medicine, or the delay in resorting to professional advice, the disease should be increased and rendered fatal.

There are few families who are not provided with a medicine chest, in which are many of the strongest remedies in the whole Materia Medica. These remedies are too often administered by guess, that is, without being accurately weighed or measured, whereas, even in the mildest medicines, too much care cannot be taken to render the doses accurate and unvarying. For this purpose, a set of scales and weights, such as are used by apothecaries, and a graduated glass scale, should be provided.

Liquid medicines are directed to be taken by spoonsful or drops. In the first case the quantity will vary according to the size of the spoon; and in the second, the drops will vary in size according to the tenuity of the liquor, or thinness of the lip of the phial. This uncertainty is obviated by a graduated measure, divided into ounces, half ounces, drachms, and scruples. It is calculated, that a table-spoonful is equal to half an ounce, a tea-spoonful to a drachm, or the eighth part of an ounce. The drops may be ascertained with great precision, by diluting one drachm of the medicine (which contains sixty drops) with water. For example, suppose ten drops to be the dose ordered. To one drachm of the medicine add five drachms of water; one drachm of this mixture, measured by the graduated scale, must necessarily contain exactly ten drops. *Doses of Powders and Electuaries*, should always be accurately and scrupulously weighed; and in making *Pills*, which are ordered by number, great care should be taken to divide the mass out of which they are formed into portions of equal weight, that each pill may contain the same dose. The prescribed dose of each medicine here recommended (excepting in the remedies expressly directed for the diseases of children,) is calculated for an adult of twenty-one years. This dose should be reduced for children, according to the following scale:

Dose for an adult.	Age.	Proportionate dose.
	21	
To be reduced at	14	to two-thirds
To be reduced at	7	to one-half
To be reduced at	5	to one-third
To be reduced at	1	to one-sixth
To be reduced at	6 months	to one-twelfth
To be reduced at	2 months	to one-fifteenth.

EXAMPLE.

The dose for an adult, being one drachm, or 60 grains.

At the age of fourteen, the dose should be reduced to 40 grains.

At the age of seven, the dose should be reduced to 30 grains.

At the age of five, the dose should be reduced to 20 grains.

At the age of one year, the dose should be reduced to 10 grains.

At the age of six months, the dose should be reduced to 5 grains.

Under three months, the dose should be reduced to 4 grains.

It can scarcely be necessary to observe, that an ounce contains eight drachms, or 480 grains; a drachm contains three scruples, or 60 grains; and a scruple, 20 grains.

603. *The Ague.*

This disorder occurs frequently, and is well known to the domestic practitioner; it may be rendered milder by the timely use of an emetic, given one hour before the fit is expected to return. For this purpose, one scruple of ipecacuanha may be given in an ounce of water. After each return of vomiting, give half a pint of tepid chamomile tea, which may be repeated three or four times, but not oftener. When the disease has continued for some days, and the force of the fever is weakened by emetics, give, to an adult, the following preparation of bark.

Take of Peruvian bark, in fine powder, one ounce; port wine, one quart; mix them and let them stand together for twelve hours. Shake the bottle, and give four large spoonsful immediately after the hot stage of the disorder, repeating it every second hour till the whole be taken; unless the coming on of the next ague fit should require its suspension.

604. *Apoplexy.*

This disease frequently proves fatal, and therefore the treatment of it cannot with propriety be brought within the range of Domestic Medicine; nevertheless, it may not be improper to remark, that the patient should be placed in a horizontal position, with the head gently raised; the shirt collar should be opened, and every part of the dress removed from the neck. He should be bled freely from the arm. Let no attempt be made to pass any medicine; or even warm water into the stomach; the power of deglutition being suspended, the symptoms will be greatly aggravated by whatever fluid may be forced into the mouth. Medical and surgical aid should be instantly procured, as it may be necessary to open the temporal artery, and to apply blisters and other stimulants. The bowels should be relieved by the following injection.

Take of infusion of chamomile-flowers, or warm water, twelve ounces; Epsom salts, six drachms; lenitive electuary, six drachms; oil of olives, one ounce; mix them together. This injection must be repeated every hour, till there be a free evacuation.

605. *Asthma.*

This disease varies in almost every variety of constitution; in some persons it is spasmodic, in others humoral. The former is occasioned by a spasmodic stricture of the wind-pipe and air vessels of the lungs, which prevents a free dilatation or contraction of the parts concerned in respiration; when it happens from this cause, there is little or no secretion of mucus. On the contrary, the Humoral Asthma is a relaxation of the mucous glands of the lungs, in consequence of which, the secretion becomes so copious as to obstruct the freedom of inspiration and expiration.

The spasmodic is most violent, but of shorter duration; the humoral is more severe in the winter season than during the summer months, so far as regards the cough and difficulty of breathing. Some asthmatic patients can breathe only in a dry serene atmosphere, on elevated points of land; while others are most at their ease in moist air, or low situations.

This disease, in all its varieties, is tedious and difficult to manage, and scarcely within the limits of the present sketch. When a sudden attack of spasmodic asthma comes on from an exposure to cold air, bleeding from the arm becomes necessary, unless weakness or old age should forbid the operation. The spasm has been suddenly removed by plunging the feet and legs into hot water, of a temperature of from 96 to 100 degrees of Fahrenheit's thermometer.

The bowels should be unloaded by the following aperient pills:

Take gamboge and the best scammony, in fine powder, of each four grains; white sugar, six grains. Rub them well togetner, and form them into three pills, with the syrup of squills.

Or the following aperient draught:

Take of Senna leaves, three drachms,
Ginger, in powder, fifteen grains,
Boiling water, four ounces.

Let them stand together one hour, then strain off the liquor, and add to it, of

Epsom salts, half an ounce,
Tincture of senna, three drachms.

As soon as the bowels are relieved, squills and gum ammoniacum may be given in the following forms:

Take Gum ammoniacum,
The pulp of fresh squills, of each 30 grains,
Flowers of benjamin, 20 grains,
Balsamic tincture,

a sufficient quantity to form a mass; divide it into twenty-four pills. Dose, three night and morning. Or the following mixture:

Take of Milk of gum ammoniacum, four ounces,
Syrup of squills, three ounces.

Mix them together. Dose, two large spoonsful twice a-day.

606. *Appetite, Loss of.*

This is generally symptomatic, and varies according to the occasional cause. The continued use of warm tea, of wine, or other spirituous liquors, diluted with warm water, or the use of warm water alone, if long continued, will occasion a relaxed state of the muscular coat of the stomach. This organ also suffers from anxiety of mind, a sedentary life, or a costive habit; from these and other causes it becomes weakened, irritable, and incapable of digesting the most simple food. To restore the tone of the stomach, first give this emetic:

Take of Ipecacuanha, in fine powder, one scruple,
Horse-radish tea, two ounces.

Mix them together. Between the times of the operation, half a pint of horse-radish tea should be drank, but not repeated oftener than twice or thrice. Afterwards keep the bowels regular by the following aperient pills.

Take Rhubarb, in fine powder,
Carbonated kali, of each 30 grains,
Ginger, in fine powder, one scruple,
Balsam of Peru,

a sufficient quantity to form a mass; divide it into twenty-four pills. Dose, three or four every other night, at bed-time.

At the same time, to restore the tone of the digestive organs, the following decoction should be taken:

Take of Peruvian bark, six drachms,
Cascarilla bark, two drachms.

Bruise them in a mortar, and boil them in a pint and a half of water for a few minutes; strain off the liquor while hot, then add tincture of bark two ounces; diluted nitric acid, a drachm and a half. Dose, four large spoonsful three times a-day.

Medicines will afford little or no relief, when the stomach has been weakened by an intemperate use of spirituous liquors. Exercise on horseback, sailing, or any other kind of exercise in the open air, that does not induce fatigue, will be found beneficial. Beef and mutton, game, shell-fish, white fish, such as haddock, soles, flounders, eels, &c. are to be preferred for common diet. Salmon and other rich fish should be avoided.

607. *Boils*

Are too well known to require any description: they commonly suppurate in the course of eight or ten days; but do not heal till the slough or core be thrown off, which must be patiently looked for, as all interference with this effort of the constitution will do harm. A common poultice of bread and milk is the best application to soften the skin and promote the discharge. By some, the following linseed meal poultice is preferred:

Take of Decoction of white poppies, one pint,
Linseed meal,

a sufficient quantity to give a proper consistence.

In recent inflammation, where it is desirable to prevent suppuration, preparations of lead may be used, but they ought never to be employed where the abscess is already formed. The following are the proportions for the poultice:

Take of Acetous liquor of lead, two drachms,
Distilled water, one pint,
Crums of bread,
a sufficient quantity to give a proper consistence. Mix them together.

608. *Burns and Scalds.*

These casualties of daily occurrence, if they are not to a wide extent, fall under the care of the Domestic Practitioner. Numberless and various have been the applications recommended, but for the most part mild and lubricating. Of late, stimulants have been applied, such as spirit of turpentine, &c. &c. The great secret in the treatment of these accidents, is to exclude the atmospheric air as soon as possible; for this purpose, the following lotion affords immediate relief.

Take of Prepared ammonia, half an ounce,
Distilled vinegar, one pint.
When the effervescence has ceased, add of
Distilled or rain water, one pint,
Acetous liquor of lead, (Goulard's extract,)
Rectified spirit of wine, of each, five ounces.

Mix them together. Take lint, or if that cannot be procured, soft linen cloth; fold it into three or more folds, let it be thoroughly moistened with the lotion, then lay it as smooth as possible on the part burnt or scalded, taking care not to remove or disturb the skin. When the lint becomes dry, it must not be removed, but another piece of lint, made wet, (as before directed,) applied over it. This second piece of lint may be removed and moistened with the lotion as often as it becomes dry, and replaced upon the first covering of lint, which *first covering* must not be disturbed. By a strict observance of these directions, the patient will experience immediate relief, the part will gradually heal, and a perfectly smooth cicatrix will be formed. These advantages will be lost, if the first covering of lint be removed.

609. *Bites of Bugs, or Stings of Wasps.*

To correct the virus of these insects a variety of means has been employed, such as olive oil, spirit of hartshorn, tincture of opium, alone, or combined with rectified spirit of turpentine, or æther. A thick mixture of chalk and water generally affords immediate relief when applied to the part injured by the sting of the bee, wasp, or gnat. Lay it on the part, and renew it as often as it becomes dry. Should the sufferer be stung in the mouth, this application may be used with the greatest freedom, and without the least risk.

For the sting of the bee, a mixture of honey and vinegar has the preference.

Bugs are effectually destroyed by the following lotion:

Take, Muriate of mercury,
Verdegris, of each three drachms,
Infusion of the leaves of fox-glove, or of the leaves of tobacco, two quarts.

Mix them together, and do not forget to write on the label the word *Poison.* This lotion must be applied with a painter's brush, and well washed in upon the frame and posts of the bedstead, also upon the boards and skirting-boards.

610. *Bleeding from the Nose.*

This hemorrhage may arise from a plethoric state of body, violent exercise, the heated air of crowded rooms, sudden agitation of mind, &c. &c.

First, remove every part of the dress from the neck, open the shirt collar, avoid every exertion, more particularly those motions of the body which might occasion the head to stoop forward. Gentle pressure on the carotid arteries, (which may be traced by the pulsation on each side of the neck,) or cold applications to the back, between the shoulders, are likely means to check the bleeding. To prevent a recurrence, and to guard off what might become a periodical habit, the patient should confine himself to a spare diet, avoiding wine and all other fermented liquors. Cupping on the back, or bleeding from the arm, if the habit is full or plethoric, must be resorted to, and to prevent a costive state of the bowels, mild aperient medicines should be employed, such as the following:

Take of Epsom salts, one ounce,
Water, one quart.

Dissolve the salts in the water. Dose, half a pint every morning.

When the bowels are regular, or after they have been acted on by the above medicine, this mixture may be prescribed:

Take of Nitre, one drachm,
Distilled water, four ounces,
Camphor mixture, three ounces,
Syrup of white poppies, six drachms.

Mix them together. Dose, three large spoonsful every fourth hour.

The constitution, either from disease or intemperance, may be so lowered, the blood itself rendered so thin, or the vessels so much weakened, as frequently to give way and burst, even when the patient has not been exposed to violent exertion, agitation of mind, nor to the heated air of crowded rooms. Under such circumstances, all those means should be employed which have a tendency to restore the strength of the patient. As a medicine for this purpose, much benefit may be derived from the following decoction:—

Take of Peruvian bark, in powder, one ounce,
Water, one pint and a half.

Boil them together for a few minutes, strain off the liquor while hot, then add, of

Tincture of bark, two ounces,
Diluted nitric acid, one drachm and a half.

Dose, four large spoonsful, three times a day.

The following simple remedy has often prevented a return of the hemorrhage, when all other means have failed:—

Take of Rectified spirit of turpentine, ten drops,
Mucilage of gum arabic, two drachms.

Mix them together, and add, of common mint water, one ounce and a half.

This draught should be taken every sixth hour.

611. *Bowels, Inflammation of*

In this case the first effort should be to reduce the violence of the inflammation, by bleeding freely from the arm. Leeches should likewise be applied, (as soon as they can be procured), as near to the seat of the pain as possible, and in number according to the age and strength of the patient. For an adult, twelve at least. If they afford relief, apply an equal number again, and although the pain should cease, it will be proper to apply them, even a third time, to prevent a recurrence of the inflammation.

The internal remedies to be used, at the commencement of the attack, are mild aperients and emollient injections, such as were recommended in apoplexy. A free passage through the bowels must be obtained and continued for some days, even after the pain and inflammation have ceased; therefore it may be necessary to repeat the injection, and give the following opening mixture:—

Take of Castor oil, one ounce,
Mint water, two ounces.
Mix them together.

The presence of the physician cannot be dispensed with; he should be consulted as early as possible.

612. *Bruises,*

However violent, provided the skin is not broken, are speedily relieved, by rubbing the part night and morning for fifteen or twenty minutes, with the following liniment:—

Take of Soap liniment, two ounces,
Camphor liniment, one ounce.
Mix them together

613. *Costiveness*

May be relieved by a change of diet, exercise on horseback, or any other exercise in the open air, or by taking one of the following pills an hour before dinner:—

Take of Socotrine aloes, thirty grains,
Gum mastic, ten grains,
Oil of wormwood, one drop,
Tincture of aloes,
A sufficient quantity to form the ingredients into a mass, which must be divided into twelve pills.

This is an excellent dyspeptic pill, and will afford great relief in all cases of weak digestion.

614. *Cramp and Spasm.*

It frequently happens that persons are extremely annoyed by cramp during the night, which may be relieved by the following tincture:—

Take of Tincture of opium, two drachms,
Æther, half an ounce.

Mix them together, and take thirty or forty drops every night at bed-time.

615. *Cancers.*

There are three diseases, which, when in full action, mock the efforts of the physician and surgeon, viz. Cancer, Tetanus, and Canine Madness.

Glandular obstructions are followed by the swelling or enlargement of the glands; at this stage, by judicious treatment, the obstructions may be removed, and scirrhus, strictly so called, prevented; but, if once formed, it will be difficult, if not impossible, to check its progress, till it takes on the character of cancer. Nothing remains, but to destroy the disease by caustic, or to remove it by excision. Few persons suffering under this malady readily assent to submit to either of these means, until the opportunity of effecting a cure, by the removal of the part diseased, has passed away. When the scirrhus becomes an open cancer, and absorption has taken place, no medicine, no operation can resist or remove the evil. At this advanced stage of the disease, we should endeavour to relieve the bodily pains and mental sufferings of a miserable fellow-creature, writhing under a tedious, excruciating, and offensive malady, with no prospect of relief, but that of a final dissolution. To prolong existence, it becomes necessary to support the strength of the patient, to alleviate his sufferings by anodyne medicines, and to render the discharge from the ulcer less offensive, by soothing and corrective applications.

When ulceration has commenced, nothing aggravates the symptoms more than the exposure of the wound to atmospheric air; the pains become more acute, and the discharge more offensive. To correct the latter, the following vegetable poultice may be applied, every morning.

Take of carrots, a sufficient quantity, boil and reduce them to a pulp, and add to it some finely powdered charcoal.

The charcoal may also be mixed with the pulp of boiled turnips, or with linseed meal.

Linseed oil, prepared in the following manner, may be used at bed-time:—

Take any quantity of linseed oil, and boil it for a considerable time, till it be rendered of a consistence that will spread upon lint: this is a mild and soothing application, and excludes the action of the atmospheric air.

The puff-ball ointment has also been used with good effect.

Take of Hog's lard, one ounce,
Resin, five drachms,
Wax, two drachms,
Verdigris, one drachm.

Melt them together; when cold, take a piece of lint sufficient to cover the ulcer, and spread the ointment upon it; then take the dust of the lycoperdon, or puff-ball fungus, and sprinkle it over the surface, rub it gently into the ointment, till a coating of the thickness of a shilling be formed. Lay it smoothly on the ulcer, and suffer it to remain undisturbed for some days. When removed, wash the ulcer with alum water, and apply the inspissated oil of linseed.

616. *Canine Madness.*

This disease, like cancer, is not to be controlled, after the virus has been absorbed, or gets by any other means into the habit. Excision and extirpation by caustic, and that immediately after the bite of the dog, are the only means to be relied on. In performing this operation, great care must be taken to carry the incision beyond the extreme point of the wound, inflicted by the tooth of the dog. There is no application, no internal remedy, as yet discovered, that in the least degree weakens or retards the progress of the symptoms occasioned by this specific virus or poison. As a preventive, all useless dogs should be destroyed, and all those which are kept for sporting, or as house guards, should be muzzled, whenever they are permitted to range from their kennel.

617. *Chaps on the Skin*

Are occasioned by a cold atmosphere; they may be prevented by warm clothing, or cured by washing the parts with warm water, and making them perfectly dry with a soft linen towel, then rubbing on a small quantity of the following ointment:—

Take beef marrow, macerate it for some days in water, changing the water daily; after the water is drained off, place the marrow on a napkin; when perfectly dry melt it over a slow fire.

Of the Marrow, thus prepared, take two ounces,
Acetated ceruse, thirty grains.

Dissolve the ceruse in a small quantity of rose water, and add it, by degrees, to the marrow while warm; rub them together in a marble mortar, till the whole be intimately incorporated.

A few minutes after the ointment has been applied, it must be wiped off with a soft napkin.

618. *Colic*

Is an acute pain, generally occasioned by some obstruction in the alimentary canal. If attended with vomiting, and bile be ejected, it is said to be *bilious.* If from wind, without heat or thirst, it is deemed *flatulent*—when with fever, tension of the abdomen, soreness and pain, with a quick pulse, it is considered to be *inflammatory.* Vide *Inflammation of the Bowels, page* 306.

In some cases the motion of the intestines is inverted, and their contents are ejected through the mouth; this action has been distinguished by the name of *iliac passion.* The remote cause of colic varies, and the symptoms differ accordingly, but the proximate cause is nearly the same, viz. a spasmodic constriction of some part of the intestines. In all cases of colic, from exposure to cold air, passions of the mind, or whatever operates on the nervous system, opium proves a safe and certain remedy, but cannot be used until two or more purgative motions have been procured. When, from the violence of the spasms, vomiting prevents the immediate use of medicine, opium may be applied as an antispasmodic, in the form of the following injection:—

Take of Tincture of opium, one or two drachms,
Infusion of linseed, eight ounces.

Mix them together. Two or three grains of opium, in fine powder, may be used instead of the tincture.

As soon as the stomach is freed from the exciting cause of the vomiting, mild purgatives, in the form of pills or injections, should be employed to keep the bowels regularly open for several days, which may be done by either of the following purgative remedies:—

Take of Cathartic extract, one drachm,
Divide it into twelve pills, three of which are to be taken, and the dose to be repeated after an interval of three or four hours, if necessary.

Take, for the injection, of Castor oil, two ounces,
The yolk of an egg.
Rub them together, and add a pint of cow's milk.

Take, for an aperient electuary, of the pulp of tamarinds, two ounces,
Cream of tartar, half an ounce,
Syrup of roses,
A sufficient quantity to form an electuary.
Dose, a quantity equal to the size of a walnut, to be taken every hour till it operates.

On many occasions, nothing can be more effectual than a full dose of calomel. Sometimes, relief is obtained by antimonial emetics in the following forms:—

Take of Antimonial wine, two drachms,
Ipecacuanha wine, one ounce.
Mix them together.
Or, Take of Ipecacuanha, in fine powder, fifteen grains,
Antimonial wine, sixty drops,
Mint water, one ounce.
Mix them together.

If, notwithstanding the use of the remedies here recommended, the pain should continue, inflammation must follow. Bleeding from the arm, *and* by leeches, as directed in page 306, should be resorted to without delay, and medical aid should be procured.

The patient may drink of rennet whey, thin gruel, toast and water, or very weak broths.

619. *Cough*

Is frequently preceded by an increased secretion from the mucous membrane lining the nose, an involuntary flow of tears, sneezing, and oftentimes a difficulty of breathing, the inflammation rapidly extending from the nose to the throat and lungs, exciting a short dry cough, which after two or three days, if the attack be mild, is accompanied by a free and copious discharge of mucus. It may arise from a peculiar state of the atmosphere, or from sudden changes of temperature.

To relieve the symptoms, and hasten recovery, the patient should not be exposed to a temperature beneath 64 degrees of Fahrenheit. He should take the emetic last prescribed, and between the times of its operating drink half a pint of warm water. If the emetic should not act on the bowels, the following aperient medicine will be necessary:—

Take of Tartarized natron, one ounce,
Manna, six drachms,
Distilled water, six ounces.

Dissolve the salts and manna in the water, strain off the liquor, and add

of Tincture of senna, or aloetic wine, one ounce.

Dose, two or three large spoonsful every third hour, till it operates *.

620. *Corns*

Are occasioned by the pressure of tight shoes; in order to remove them, avoid the pressure, by wearing an easy shoe, and guarding the part with a mild adhesive plaster, like the following:—

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* In violent colds, or sore throats, the patient may find great relief by inhaling the steam of hot water, or vinegar and water, after he is in bed, taking care not to check the perspiration which will be excited.

Take Compound litharge plaster,
Litharge plaster with mercury, of each, equal parts.

Melt them together, and spread a part of it on linen cloth, or leather.

Or, bathe the feet in warm water, rub or grate off the surface of the induration or corn, and repeat it every third night, covering the part with the plaster before directed.

621. *Deafness*

May arise from a paralysis of the auditory nerves, from a relaxation of the drum or tympanum, or from an accumulation of wax. The first is seldom relieved. The second, by the use of the cold bath and by tonic medicines, is not only relieved, but frequently cured. The third admits of cure by syringing the ears with a solution of soap in water, and, after the removal of the wax, by introducing wool into the ears, moistened with this liniment:—

Take Oil of sweet almonds,
Spirit of lavender,
Tincture of castor, of each, two drachms.

Mix them together. It often happens that persons are greatly annoyed by a constant fetid discharge from the ears, indicating a diseased secretion. Syringe with soap and water, and afterwards apply this balsam:—

Take of Ox gall, three drachms,
Peruvian balsam, one drachm.

Mix them together.

622. *Diarrhœa*

Is a frequent discharge from the bowels, so diversified in its causes and in its violence, that it is extremely difficult to describe the characteristic symptoms.

It differs from dysentery and cholera; from the former, as being without fever; and from the latter, by the absence of frequent vomiting of bile from the stomach.

In simple diarrhœa the peristaltic motion of the intestines is very much increased, which may be occasioned by an exposure to cold air or rainy weather, by which perspiration is checked, and a determination takes place to the bowels; also, by violent agitation of the mind, by morbid affections, as the gout, and by an increased secretion of bile suddenly passing from the gall bladder.

An acrid state of the bile sometimes occasions cholera.

It may be prudent to remark that improper food, especially if taken immoderately, is a frequent cause of diarrhœa. The digestive organs being weakened, the liquor secreted by the stomach may be deficient or in excess, by which the process of digestion becomes imperfect; and the food passing on in a crude state, irritates the coats of the intestines, and brings on an increase of the peristaltic motion. Worms, likewise, in children, are a frequent cause of diarrhœa. Hence, it is obvious that the particular cause should be accurately ascertained before the remedy is applied If from cold air, or rain, the patient may be relieved by a gentle emetic and warm clothing; if from agitation of mind, by the following mild anodyne, at bed-time, carefully withdrawing the cause of agitation:—

Take of Camphorated mixture, one ounce and a half,
Tincture of opium, twenty drops,
Compound tincture of cardamoms, two drachms,
Syrup of cloves, one drachm.

Mix them together. If from gout, the remedies for that disease are the most applicable; if from an increased secretion of bile, by keeping the bowels regularly open by the aperient medicine recommended page 305, and diluting freely with common tea or any other weak liquor; if from improper food, by abstaining from it, and taking a dose of calomel, such as the following:—

Take of Calomel, five grains,
Conserve of roses,
A sufficient quantity to form a pill.

Afterwards, by endeavouring to strengthen the stomach by observing a proper regimen, and by the use of a restorative draught, composed after the following manner:—

Take of Peruvian bark, six drachms,
Cascarilla bark, two drachms.
Bruise them into a coarse powder, and pour upon them a pint of boiling water: let them stand together twelve hours, then strain off the liquor. To two ounces of this liquor, add, of
Diluted nitrous acid, ten drops,
Compound tincture of cardamoms,
Syrup of cloves, of each, one drachm.
Mix them together, as one dose, to be taken twice or thrice a day. When from worms, see the Diseases of Children, page 369.

It sometimes happens that diarrhœa is occasioned by a prevailing acidity in the contents of the stomach and intestines, which may be relieved by this anodyne mixture:—

Take of Chalk mixture, seven ounces,
Tincture of opium, twenty drops,
Spirit of cinnamon, six drachms.
Mix them together, and take three large spoonsful after each purgative motion. If given in this manner, there will be no risk of checking the disease too suddenly. Mild diluting liquors should be freely used.

When it arises from obstructed perspiration, and there are circumstances which forbid the use of an emetic, the following sudorific draught may be given at bed-time:—

Take of Compound powder of ipecacuanha, twelve grains,
Camphor mixture, one ounce and a half.
Mix them together.

623. *Dysentery and Cholera*

Are too formidable to be entered on the list of cases for the domestic practitioner; nevertheless, he should be aware of their distinguishing or characteristic symptoms, in order that they may be, from their commencement, placed under the care of the physician.

Dysentery is marked by frequent sharp and acrid motions, small in quantity, followed by tenesmus; the matter voided mixed with mucus and tinged with blood.—A natural motion seldom occurs—fever, nausea, and vomiting, with a total loss of appetite, are constant symptoms.

Cholera may be known by a sudden attack of vomiting and purging alternately of pure bile, accompanied with cramp or spasms, and a sudden prostration of strength.

In these diseases medical aid should be instantly sought for, as delay would be extremely hazardous to the patient.

624. *Ear-Ach*

May be occasioned by exposure to a current of cold air, by the forming of an abscess, or by insects, or any other foreign body getting into the ear. If the abscess forms and gives way, the ear should be syringed with tepid water. If the pain be caused by any extraneous matter getting into the ear, it should be removed by a proper instrument; if from cold, attended by inflammatory symptoms, cooling yet effective purgatives should be given, such as that recommended page 305; cupping, leeches, or blisters, may, if early applied, prevent the formation of an abscess. The patient should not expose himself to cold air; his diet should consist of milk and vegetables, carefully abstaining from wine and all fermented liquors.

625. *Eyes, Inflammation of,*

Properly so called is seated in the membranes of the eye, and should be distinguished from inflammation of the glands of the eyelids: although they may require a different mode of treatment, they frequently excite each other. In the former, the blood vessels of the membranes become turgid and filled with blood, attended by pain and an effusion of tears; the admission of light aggravates the symptoms. This inflammation may be occasioned by external violence, by wounds inflicted, by contusions, by extraneous bodies getting under the eyelids, by strong light long continued, and by frequent intoxication, &c. First, ascertain from which of these causes it arises. It may be proper to observe, that as the inflammation is local, much is not to be expected from general bleeding, or from violent purgatives. To subdue the violence of the inflammation, bleed freely with leeches round the eye; or, where leeches cannot be procured, cupping-glasses may be applied. Blisters, likewise, are often used with effect. When the inflammation does not yield to these means, and the loss of sight is to be apprehended, setons in the temples are to be preferred. Mild purgatives, as in page 305, should be used daily, to keep the bowels open, and a cooling light regimen, such as milk and vegetables.

All irritation must be avoided, particularly a strong light; and for this purpose the patient should be kept in a darkened chamber. All applications that increase the heat are injurious. The admission of cool air to the eye, or a proper application of cold water to the eyeballs, and other cooling and sedative remedies, which tend to lessen the irritation, and alleviate the symptoms, should be employed: such as the following lotions:

Take of The soft extract of opium, ten grains,
Camphor, six grains,
Boiling distilled water, twelve ounces.

Rub the camphor and opium in a mortar, with three or four drops of spirit of wine, till they are incorporated: then add the boiling water. Or this lotion may be used with great advantage at the commencement of the inflammation:

Take of Water of acetated ammonia, two ounces,
Distilled boiling water, six ounces,
Soft extract of opium, ten grains.

Dissolve the extract in the boiling water, strain the solution through linen, and add the acetated ammonia:

Take of Sulphate of zinc, six grains,
Spirit of camphor, thirty drops,
Ceruse, four scruples,
Rose or elder-flower water, six ounces.

Mix them together. After the inflammation has been removed, this collyrium may be used to brace the vessels and membranes of the eye.

When obstructions in the glands of the eyelids are the cause of the inflammation, the same means are to be employed to moderate it as have been just mentioned, and this ointment should be applied to the edges of the eyelids, every night at bed-time, with a camel's hair pencil:

Take of Prepared tutty, one ounce,
Prepared aloes, twelve grains,
Prepared beef marrow, six drachms,

Soft extract of opium, ten grains,
Oil of sweet almonds,

a sufficient quantity to form a soft ointment. Great pains must be taken to reduce the tutty and aloes to an impalpable powder, then mix them intimately, first with the opium, afterwards with the marrow and the oil:

Or, take of Red nitric oxyde of mercury, one drachm,
Fresh butter, (not salted),
Beef marrow, blanched, of each, six drachms.

The nitric oxyde must be well levigated and reduced to a fine powder.

626. *Freckles and Sunburn*

Are for the most part occasioned by exposing the skin to the action of the sun. They appear on the face, neck, and hands of the finest and fairest complexions. They may be removed by this lotion:

Take of Carbonated kali, two scruples,
Oil of sassafras, six drops,
Distilled water, six ounces.

Rub the kali and the oil together, then gradually add the water:

Or, take of Lemon-juice, two ounces,
Sugar, six drachms,
Borax, three drachms,
Rose water, four ounces.

Mix them together. To be applied night and morning:

Or, take of horse-radish scraped or cut into thin slices, half an ounce; boiling milk, one pint. Suffer them to stand till cold; then

Add of Carbonate of kali, one drachm,
Camphorated spirit, half an ounce.

Mix them together, and strain off the liquor.

627. *Gout.*

The sudden attacks of this disease, the variety of its symptoms, and rapid transitions from one part of the body to another, as from the feet to the head, or to the stomach, render it difficult to give an outline of its character. In some instances it certainly has been hereditary, but chiefly induced by intemperance: hence it is familiar to the rich, but known only by name to the labouring cottager.

This disease may be counteracted by temperance and regular exercise. The sufferings of the patient, during the fit or paroxysm, may be alleviated by proper nursing. The part attacked should be kept moderately warm, or rather not exposed to a lower temperature than the heat of the body of the patient: this may be done by a covering of soft flannel, loosely thrown over the seat of the disease. If there be sickness, which generally precedes the paroxysm, repeated draughts of tepid chamomile, or horse-radish tea, should be given, to excite vomiting. The bowels should be kept open by this mild aperient medicine:

Take of Calcined magnesia, one drachm,
Rhubarb, in fine powder, twelve grains,
Mint water, two ounces.

Mix them together. This draught should be repeated every fourth hour till it operates: to this may be added, a few grains of ginger, in fine powder.

Or by the following injection:

Take of Chamomile tea, one pint,
Sulphat of magnesia, half an ounce.

Mix them, and form an injection.

The diet should consist of milk, light puddings, broths or gruel, tea or coffee, the patient abstaining from wine and all fermented liquors. This despot tyrannizes over the whole body; he is most to be dreaded when he seizes upon the head, and by a sudden transition falls on the stomach or other vital part: so instantaneous are these transitions, that the domestic practitioner ought not to delay sending for professional aid.

After the stomach and bowels have been relieved by the means already recommended, these pills may be given to keep up a moderate action of the bowels, increasing or diminishing the dose according as they operate, so as to procure a regular motion daily:

Take, The compound galbanum pill,
The aloetic pill, with myrrh, of each twenty grains,
Of muriated iron, fourteen grains,
Aromatic powder, twenty-six grains,
Syrup of ginger,

a sufficient quantity to form the whole into a mass, to be divided into twenty pills. Dose two, three, or four, to be taken at bed-time, as they operate.

When it attacks the stomach, this stimulating draught may be given:

Take, Peppermint water, one ounce and a half,
Compound tincture of cardamoms, three drachms,
Aromatic powders, one scruple,
Volatile salt of hartshorn, six grains,
Syrup of ginger, one drachm.

Mix them together. This draught to be taken three times a day.

When the violence of the paroxysm is over, opiates may be taken with advantage, especially when the patient suffers from pain or restlessness during the night.

When the patient becomes convalescent, the parts which have suffered should be rubbed night and morning with a soft brush, or with a flannel glove made for the purpose. Exercise on horseback, moderate walking when the strength will admit of it, and lastly the use of the hot bath, at a temperature of ninety-six degrees. Some animal food and two or three glasses of wine will contribute to the restoration of strength and spirits. Bitters, or the Peruvian bark, according to the following prescription, may be given, but not continued for more than ten days:

Take of Peruvian bark, one ounce,
Orange-peel, two drachms,
Lime water, one pint.

Let them stand together twelve hours in a moderate heat, then strain off the liquor. To two ounces of the liquor, add

Of Compound tincture of bark, two drachms,
Aromatic powders, one scruple.

This draught to be repeated every sixth hour.

After an interval of a few days this preparation of bark may be taken again.

628. *Gravel.*

This name has been given to calculous concretions passing from the kidneys through the ureters into the bladder, and afterwards from the bladder through the urethra: they occasion acute pain in the back and groins, with a sense of numbness on the inside of the thigh, with nausea and vomiting. The first discharge of gravel is the most painful; the diameter of the ureters being extremely small, they are dilated through their extent from the kidneys to the bladder by a rough and frequently an angular particle of gravel. When it drops into the bladder the pain instantly ceases, until the gravel comes in contact with the orifice of the urethra, where, by irritating the neck of the bladder, it occasions a frequent inclination to make water, and by these efforts the particle of gravel is forced into the urethra, tormenting the patient until it be discharged. If it should remain in the bladder, by attracting similar particles, it becomes larger, and forms a stone.

The pain occasioned by the passage of the gravel may be relieved by bleeding, the warm bath, and opiates. The heat of the bath should not be less than 96 degrees of Fahrenheit's thermometer. Opium, under these circumstances, may be given with greater freedom than in common cases, where the pain is less acute.

When the gravel becomes the nucleus of a stone, and that stone too large to pass off through the urethra, the only chance of relief is from an operation. Medicines may correct the disposition in the habit to form calculous concretions, but where a stone is formed, the solvents so highly extolled produce no change in it, but too often injure the urinary canals.

A stone in the bladder seldom occasions pain in a quiescent state, but the exercise of riding on horseback, or the jolting of a carriage, brings on irritation, a frequent effort to relieve the bladder with a discharge of turbid urine, sometimes tinged with blood. These symptoms, as the stone enlarges, become more urgent and intolerable; the patient at length submits to the operation, which, if performed by a skilful surgeon, is not so formidable as it is generally supposed.

The bowels should be kept open by some mild aperient, such as the following:

Take Manna, and
Tartarised soda, of each, six drachms,
Boiling water, three ounces.

Dissolve the salts and manna, then strain off the liquor, to which add tincture of cardamoms, one drachm.

The irritation at the neck of the bladder may be relieved by the following emulsion:

Take of milk of almonds, with a double quantity of gum arabic, one pint and a half; sweet spirit of nitre, two drachms; syrup of white poppies, one ounce. Mix them together. Dose, four large spoonsful every sixth hour—Or

Take of Fresh rennet whey, one pint,
Sweet spirit of nitre, one drachm,
Tincture of opium, twenty-four drops.

Mix them together. Dose, a quarter of a pint three or four times a day.

Geneva, very much diluted with water and sweetened with honey, frequently affords relief.

629. *Heart-Burn.*

This complaint has no connexion with the heart: it is seated in the upper orifice of the stomach, and occupies at times the whole of the canal leading from the mouth to the stomach. It arises from various causes, from wind, bile, acidity, acrid or pungent food, free use of fermented liquors, &c. &c. It is accompanied with a sensation of heat, anxiety, and oppression. In order to obtain relief, it is necessary to ascertain to which of these causes it is to be attributed. If from acidity, it may be removed by this absorbent mixture:—

Take of Chalk mixture, one ounce and a half,
Tincture of cardamoms, two drachms.

Mix them together; the draught to be taken occasionally.

The bowels must be kept open by the aperient mixture, page 321. When it arises from acidity, high seasoned food, or whatever may weaken the digestive organs, the following tonic draught will afford relief:—

Take of Compound infusion of gentian, one ounce
and a half,
Compound tincture of cinnamon, two
drachms,
Carbonated kali, ten grains
Mix them together.

630. Hiccough,

If a primary affection, requires little or no attention; if it be symptomatic of any other disease, it often denotes great danger. It is an involuntary convulsive motion of the muscular coat of the stomach and diaphragm. When symptomatic, it may be removed by the following fetid draught:—

Take Fetid spirit of ammonia,
Ammoniated tincture of valerian, of each,
thirty drops,
Musk julep, three large table-spoonsful.
Mix them together.

Or, by this antispasmodic tincture:—

Take Tincture of guaiacum,
Volatile tincture of valerian, of each, one
ounce.
Mix them together. Dose, two tea-spoonsful in musk julep, or camphorated mixture.

631. Hysteric Affections.

So numerous and various are the symptoms said to belong to this disease, that it becomes difficult to mark its peculiar character. It is frequently described by the patient, as a round body moving in the bowels, ascending to the stomach, and from thence affecting the throat with a sense of stricture, threatening suffocation. The patient also complains of palpitation, a costive habit, cold feet and legs, &c. To counteract the force of these attacks, the bowels should be kept open, either by this aperient mixture:—

Take of Infusion of senna, one ounce and a half,
Tincture of senna,
Tincture of cardamoms, of each, half an ounce.

Three large spoonsful to be taken occasionally.

Or, by these pills:—

Take of Calomel, eight grains,
Antimonial powder, four grains,
Conserve of roses, a sufficient quantity to form a mass.

Divide it into three pills. This dose to be repeated twice in eight days.

The feet and legs should be kept warm, the head cool, the diet should consist chiefly of animal food of easy digestion, as beef or mutton, avoiding vegetables and malt liquor, indeed every thing that has a tendency to generate flatulency. As a beverage, weak brandy and water, toast and water, tea or coffee, whichever suits the palate of the patient, may be freely used. Much depends on the cause; as that varies, so must the treatment. A dash of cold water upon the face will frequently put an end to the paroxysm.

632. *Jaundice*

Is an unnatural distribution of the bile, which, instead of flowing into the intestines, and perfecting the process of digestion, is absorbed and distributed by the blood vessels to every part of the body, giving to the skin and the white coat of the eyes a yellow tint, more or less intense. This may be occasioned by whatever obstructs the free flow of bile from the gall bladder, through the biliary duct—such as a spasm of the *duct itself, inspissated bile* or *gall* *stones*, or by a pressure on the duct by a diseased enlargement of any of the surrounding organs, as the pancreas, &c. Anxiety of mind will occasion a spasm of the duct, which is generally removed by an emetic, and the use of the warm bath. If from inspissated bile, the aperient medicine, page 327, should be used, and repeated every third morning, till three doses have been taken.

During the passage of the gall-stone through the duct, the pain is extremely acute. The warm bath, free bleeding from the arm, and full doses of opium, are the remedies most to be relied on: indeed, the recovery of the patient may rest on the prompt application of these means. When this disease is occasioned by the pressure of a morbid enlargement of the pancreas on the gall duct, the case will terminate fatally.

From whichever of these causes the jaundice may arise, it will be necessary to keep up a free action of the bowels, at least one or two motions daily: for this purpose the following pills may be taken:—

Take of Rhubarb, in fine powder, four scruples,
Socotrine aloes, three scruples,
Myrrh, in fine powder, two scruples,
Vitriolated tartar, in fine powder, thirty grains,
Soap, one drachm,
Tincture of aloes, a sufficient quantity to form a mass.

Divide it into sixty pills. Three or four to be taken night and morning, increasing or diminishing the dose according to their effect on the bowels.

633. *Lethargy*

Has a great affinity to apoplexy, and requires a similar mode of treatment. To prevent or remove the attack, blisters, bleeding from the arm, or by leeches, or cupping glasses applied to the temples, must be resorted to. After these means have been employed, a mild emetic may be given without risk, and with good effect. Occasionally volatile fetid medicines afford relief, such as the following:—

Take Ammonia,
Salt of amber, of each, one scruple,
Spirit of cinnamon,
Water, of each, one ounce.

Mix them together. The draught to be taken every sixth hour.

Or, take Tincture of guaiacum,
Volatile tincture of valerian, of each, four drachms,
Camphor mixture, six ounces.

Mix them together. Dose, three large spoonsful, every sixth hour.

634. *Locked Jaw.*

As in canine madness, so it is in this malady; when once formed, nothing, as yet discovered, can arrest its progress. A great variety of means have been employed by the most skilful in the profession, but without success.

635. *Lumbago*

Is a fixed pain in the small of the back, connected more or less with gouty or rheumatic affections of the muscles. Its seizure is sudden, so much so, that a person stooping to fasten his shoe has been rendered by it incapable of regaining an erect position. Sciatica is the same kind of affection, differing only in being seated in the upper part of the thigh near the joint, instead of the back. The lumbago requires an early application of leeches to the seat of the pain: to an adult, twelve, at least, should be applied, and if relief follows, twelve more should be repeated, as near to the seat of the pain as possible. The warm bath and brisk aperient medicines must not be omitted. When the bowels have been emptied, give the following draught at bed-time, which will induce a general perspiration before the morning.—

Take of Compound powder of ipecacuanha, fifteen grains,
Camphorated mixture, one ounce and a half.

Mix them together. To be taken at bed-time.

The patient should remain in bed through the following day, and dilute freely with warm tea, barley water, or any other weak liquor.

Sciatica, in the first instance, requires similar treatment; but, as it is frequently obstinate, and of a chronic character, stimulating liniments, such as the following, are frequently serviceable:—

Take of Compound soap liniment, four ounces,
Tincture of opium,
Æther, of each, two ounces,
Camphor liniment, one ounce.

Mix them together.

636. *Measles*

Frequently assume an alarming character, too much so to entitle them to a place in the list of common casualties. They are at all times too serious to be left, with safety, in the hands of the domestic practitioner. Medical aid, therefore, should be instantly sought for, as much depends on proper management during the first stage of the fever. The approach of this disease may be known, by attending to the symptoms which precede the eruption, in the following order.—First, the patient complains of shivering, with a sense of coldness, a thin watery discharge from the nose, hoarseness, cough, and a continued flow of tears from the eyes, which appear red and inflamed. These symptoms continue to increase in violence, until the eruption is completed, when they gradually subside. As this disorder has frequently a putrid tendency, which can only be counteracted by the scientific skill of the physician, and which, if neglected, or improperly treated, proves fatal, there can be no excuse for not calling for his aid at the commencement, of the attack. But that no time may be lost, should there be no physician present, an emetic, similar to that prescribed in page 301, may be given and repeated every half hour, till vomiting be excited. If it should not act on the bowels, take four large spoonful of the aperient medicine, page 318, every fourth hour; but this is not to be repeated after a motion has been procured. The patient should be kept in an equal temperature, near 61 degrees of Fahrenheit; if exposed to a higher degree of heat, the fever might be increased; if to a lower temperature, the cough and hoarseness would be aggravated. Wine, or wine and water, and all other fermented liquors, must be avoided. Toast and water, barley-water, pippin-posset, rennet whey, tamarind tea, coffee, tea, or any other weak diluting beverage, may be freely used, provided they are of an equal warmth to milk when drawn from the cow; also saline draughts thus prepared:—

Take of Lemon juice, half an ounce,
Carbonated kali, one scruple,
Distilled water, one ounce,
Sugar, half a drachm.

Mix the lemon-juice and kali, and as soon as the effervescence ceases, add the water and sugar.—Or, the following lemonade:—

Take of Lemon-juice, one ounce,

Boiling water, half a pint,
Sugar, a sufficient quantity to render it
palatable.

The quantity of water may be increased, if a weak lemonade is required.

After the eruption and fever begin to subside, the cough continuing to prevent the patient from sleeping, opiates may be given with advantage, in this form:—

To the above saline draught
add of Tincture of opium, fifteen drops,
Antimonial wine, ten drops.
To be taken at bed-time.

Caution.

The disease having passed through its different stages, the patient feels relieved from all unpleasant sensations, and, fancying himself far advanced in convalescence, becomes impatient to enjoy the fresh air, and incautiously and suddenly exposes himself to a colder temperature than that of his chamber, which frequently brings on fresh inflammation of the lungs, with a train of symptoms more alarming than the disease itself, and which, after a few days, terminate in the death of the patient.

General Caution.

A considerable degree of pain and inflammation often follows the application of blisters, which may be obviated, by covering the blister plaster with very thin muslin, which will prevent any part of it remaining on the skin after the removal of the blister. The muslin should be pressed down, and rubbed with the finger upon the surface of the plaster. Blisters ought never to be applied to infants, unless guarded after this manner.

637. *Mumps*

Are sometimes epidemic and manifestly contagious: they come on with shivering and a sense of coldness, followed by an increased heat, and a considerable enlargement of the glands on each side the neck, below the ear, near to the angle of the jaw-bone. This swelling continues to increase until the fourth or fifth day, when it gradually subsides; but before it entirely disappears, it often happens that other tumours take place in the breasts of women, to which the male sex are also subject in different parts of the body.

They are more or less painful, but commonly run their course without any alarming symptoms, and therefore scarcely require any remedies. This entirely depends on good nursing: care should be taken to avoid exposure to cold air, and no application should be used except a slight additional covering. Fomentations, liniments, blisters, and whatever may have a tendency to check the regular process of this disease, may occasion a sudden determination to the brain, and prove fatal to the patient.

A spare diet, gentle laxative medicines, and a free use of weak diluting liquors, are the best means to be employed: these, with a well regulated temperature, will generally guard off the secondary tumours. But when the disease has been improperly managed, and a determination to any vital part brought on, bleeding and blisters may become necessary. The disease, which, if not interrupted in its course, would have been mild, now assumes an alarming character, and becomes too critical to admit of delay. The physician should be consulted.

638. *Hemorrhoids or Piles*

Are small tumours seated in the lowest portion of the intestines, occasioned by an undue determination of blood to that part. This determination or increased flow of blood may be excited by intemperance, by a costive habit, by a sedentary life, or by drastic purgatives, especially by the use of aloes. The piles may be external or internal; in either case, they are the frequent cause of great pain and inconvenience to the patient, from which he is freed by a spontaneous bleeding, occasioned by the rupture of the piles. When the pain is severe, we ought not to wait for a spontaneous bleeding, but apply leeches as near as possible to the seat of the pain Afterwards foment the part with the following infusion:—

Take of Elder flowers, one handful,
Of the Petals of red roses, six drachms,
Boiling water, two quarts.

Let them infuse for half an hour; then strain off the liquor, and add

Of Tincture of opium, half an ounce.

It is necessary, in this complaint, to guard against a costive habit, which may be effected by the following mild aperient:—

Take of Lenitive electuary, two ounces,
Flowers of sulphur, three drachms,
Nitre, purified, two drachms,
Magnesia, one drachm and a half,
Oil of caraway, four drops,
Syrup of roses, a sufficient quantity to form the whole into an electuary.

Dose, two drachms twice a day, increasing or diminishing the quantity, according as it may operate; the object being to keep the bowels open, but not to purge the patient, which might irritate the parts diseased, and aggravate the symptoms as much as a costive habit. As an external application, the following ointment will afford relief:—

Take of Elder flower ointment, one ounce,
of White cerate, half an ounce,
of Acetate of ceruse, two scruples,
Opium and camphor, of each, one scruple.

The ceruse, opium, and camphor, must be rubbed down with olive oil, until they are intimately blended and perfectly smooth.

To prevent a return of the piles, the part should be sponged with cold water night and morning. The diet should be of the lightest kind, and in moderate quantity. If this complaint be neglected, it often becomes habitual, and returns periodically; the intestine becomes weakened, with a tendency to a prolapsus: to counteract this weakness, the following astringent injection affords relief, especially if there be an increased secretion of mucus:

Take of Galls, reduced to a fine powder, one ounce,
Distilled water, a pint and a half.

Boil them together, until the water be reduced to a pint. Strain off the liquor, and add three grains of opium, in fine powder.

630. *Palsy*

Is the loss of sensation and motion in some part of the body. It may be general, when all the parts below the head are affected: or partial, when it is confined to one half of the body, from the head to the feet, or to the lower extremities, or to a single limb.

When the muscles of the face are convulsed or distorted, it marks the cause of the disease to be seated in the brain: when the attack is partial, the cause may originate in the spinal marrow, or the nerves branching off from it; in that case, the muscles of the face are not disturbed. It arises from a variety of causes; but when it follows an apoplectic attack, the patient seldom or perhaps never recovers.

It is only in the slightest attacks of palsy that we can hope for a perfect recovery. Tingling, or itching in the parts affected, the coming on of fever, and sensation remaining, are symptoms which afford hope.

The food should be light yet nutritious, the bowels kept regular either by injections or mild aperient medicines; blisters should be applied and often repeated, or the parts stimulated by mustard seed, in fine powder, mixed with water. Any other stimulating application may be beneficial, provided it be rubbed in night and morning. This stimulating mixture, or the following draught, may be taken internally:

Take of Horse-radish, in thin slices, two ounces,
Mustard seed, bruised, three drachms,
Valerian root, half an ounce,
Rhubarb, in slices, three drachms.

Beat them well together in a mortar, then put them into a close vessel, and pour upon them a quart of good white wine. Shake them frequently, and after a few days strain off the liquor. Dose, four large spoonsful twice or thrice a day.

Take of Camphor mixture, one ounce and a half,
Castor, in fine powder,
Volatile salt of hartshorn, of each, one scruple,
Syrup of ginger, one drachm.

Mix them together. To be taken every sixth hour.

This embrocation should be rubbed upon the spine and the parts affected, night and morning.

Take of Camphor liniment, two ounces,
Rectified spirit of turpentine, one ounce,
Soap liniment, six drachms.

Mix them together.

640. *Palpitation of the Heart.*

Manifold are the causes of this disorder: they chiefly arise from the organization of the heart itself, or the vessels proceeding from it, taking on a diseased action, producing an enlargement or ossification, &c. &c. When it proceeds from these changes, it is by no means proper to leave the mode of treatment to the domestic practitioner.

It sometimes arises from a weakened state of the stomach; indigestion follows, with restlessness and flatulency: whatever can invigorate and restore a proper tone to the coats of the stomach ought to be employed. First, by taking a gentle emetic, namely, fifteen grains of ipecacuanha, which may be repeated every third or fourth morning, during fifteen days. On the intermediate days, the following medicine may be used:

Take of Peruvian bark, in powder, two ounces,
Gentian root,
Orange-peel, of each, six drachms.

Infuse them in twenty ounces of brandy, in a moderate heat for six days, then strain off the liquor:

Take of Peruvian bark, in powder, one ounce,
Lime water, one pint.

Rub them together in a mortar. After standing together six hours, strain off the liquor, and add to it two ounces of the above tincture. Dose, two ounces three times a-day.

Or, Take of Cascarilla bark, bruised, half an ounce,
Columba root, one drachm,
Boiling water, one pint.

Let them stand together till cold, then strain off the liquor, and

Add of Compound spirit of ammonia, two drachms,
Spirit of cinnamon, one ounce,
Syrup of orange-peel, half an ounce.

Mix them together. Dose, the same as the former.

The diet should consist of animal food, easy of digestion, and taken sparingly; vegetables and malt liquor should be avoided; weak brandy and water may be used as a common beverage. The bowels should be kept regular and the feet warm. Exercise on horseback in the open air, and any other exercise, short of fatigue, will be beneficial.

When it arises from gout, volatile medicines, blisters, the foot bath, or even bleeding ought to be employed if the habit be plethoric. But whenever this happens, the domestic practitioner should give up all responsibility to the physician. When it proceeds from nervous or hysterical affections, the palpitation will cease on the removal of their cause.

641. *Pleurisy*

Comes on with a shivering and sense of coldness, an acute pain in the side increased by inspiration, soon followed by difficult respiration, a hot skin, a quick strong pulse, thirst, nausea, a dry cough, and a flushed countenance. The pain, which is seated in the membrane lining the chest (the pleura) becomes more and more acute, extending round the chest towards the spine. At first, the cough is dry without expectoration, but, in the progress of the disease a free discharge of mucus tinged with blood comes on, which is deemed a favourable symptom. This attack is at all times alarming, and requires the most prompt and effective remedies. Till professional aid can be obtained the following means may be safely used.

Bleed freely from the arm, taking away at least sixteen ounces from an adult, and repeating the operation according to circumstances twice, thrice, or even four times in twenty-four hours. Whatever may be the violence of the fever, a large blister should be applied to the side as near to the seat of pain as possible. When, as it sometimes happens, a sufficient quantity of blood cannot be procured by the lancet, twelve leeches should be applied to the side, and repeated. Whether it be from the arm or by local means, the success will depend on a large quantity of blood being taken from the patient in the course of a few hours. So urgent are the symptoms in this complaint, that the bleeding should be repeated till the pain in the side and difficulty of breathing be relieved.

It will be necessary to unload the bowels; and for this purpose give the calomel pills, page 327, immediately on the commencement of the attack.

If this medicine should operate, a free action of the bowels should be kept up by the following aperient mixture:

Take of Tartarised natron, six drachms,
Manna, one ounce.

Dissolve them in six ounces of the infusion of senna. Dose, three large spoonsful occasionally.

The following febrifuge draught should be given every fourth or sixth hour:

Take of Purified nitre, ten grains,
Camphor mixture,
Distilled water, of each, six drachms,
Syrup of tolu, one drachm.

Mix them together.

To promote expectoration, this emulsion is generally efficacious:

Take of The milk of almonds, ten ounces,
Milk of gum ammoniacum, six ounces,
Oxymel of squills, half an ounce.

Mix them together. Dose, four large spoonsful, three times a-day.

The diet should be low, such as gruel, milk, alone or mixed with tea or coffee; rennet whey, pippin posset, or tamarind tea, strictly avoiding animal food and all fermented liquors. But before we arrive at this stage of the disease, the medical friend of the family will be in attendance.

642. *Pimples and Tetters*

Arise from an obstruction of the pores of the skin, frequently occasioned by an inspissation of the fluid secreted by the sub-cutaneous glands. They frequently appear on the face, disfiguring the nose. A strong solution of soap in rain water, should be applied to the part with a coarse napkin, or when it can be done, with a moderately firm face brush night and morning. Instead of the soap, this detergent lotion may be used, after the same manner:

Take of Milk of almonds, prepared with rose
water, twelve ounces,
Water of pure kali, two drachms,
Camphorated spirit, two ounces.

Mix them together, and wash the parts with a soft sponge made wet with this lotion, night and morning.

643. *Quinsy*

Is the common inflammatory sore throat, attended by a sense of heat and fulness in the throat, by difficult deglutition, generally preceded by shivering, with a sense of coldness. On inspection, the tonsils appear red and enlarged. These symptoms continuing to increase, the patient is threatened with suffocation, the tonsils suppurate, when by a spontaneous bursting of the abscess, relief instantly follows. It often happens that the abscess does not give way so soon as expected, when the puncture of a lancet puts an end to the alarming sufferings of the patient. In some cases the quantity of matter contained in the tumour is very considerable, and instances have occurred, when, from the sudden bursting of the tumour, the patient being in a horizontal position, suffocation has followed from the matter falling into the lungs.

To guard against these evils, an emetic of ipecacuanha should be administered, and a blister applied to the neck. As soon as the effect of the emetic has ceased, and the stomach will receive it, give the following aperient mixture:

Take of Tartarised kali, three drachms,
Infusion of senna, two ounces,
Tincture of senna, two drachms.
Mix them together.

If blisters are objected to, a piece of fine flannel, moistened with the compound spirit of ammonia, may be placed round the neck. Gargles are to be used in every stage of this disease; at first they should be mildly detergent, as the following:

Take of Barley water, six ounces and a half,
Honey of roses, one ounce,
Tincture of myrrh,
Vinegar, of each, two drachms,
Mix them together, and cleanse the mouth and throat with some of the gargle from time to time.

When the violence of the symptoms begins to subside, a sharper gargle becomes necessary; for this purpose the following is recommended:

Take of Infusion of red roses, seven ounces,
Honey of roses, one ounce,
Diluted sulphuric acid, twenty drops.
Mix them together.

Throughout the course of this disease, keep the bowels open with mild purgatives or laxative injections. When the swelling of the tonsils comes on rapidly, send instantly for a surgeon.

644. *Ring Worms*

First appear in irregular circular lines on the skin, spreading in every direction, destroying the skin and running into each other, leaving a bran-like scurf without any appearance of inflammation, except in the part which forms the outline or circumference of the imperfect circles. They are generally removed by this lotion:

Take of Sulphat of zinc, one scruple,
White ceruse, two drachms,
Rain water, eight ounces.

Mix them together, and apply the lotion with a soft sponge, night and morning.

Or, Take of Muriate of mercury, one scruple,
dissolve it in an ounce of
Rectified spirit of wine, then add of
Milk of almonds, six ounces,
Spirit of rosemary, one ounce.

Mix them together, and apply the lotion as above directed.

A regular, mild, and spare diet, gentle purgatives, exercise in the open air, short of fatigue, and carefully abstaining from fermented liquors, will contribute very much to the removal of this complaint. When the disease is obstinate, the warm bath and sudorifics may be used with good effect. The following sudorific draught is to be preferred:

Take of The compound powder of Ipecacuanha, twelve grains,
Chalk mixture, one ounce and a half,
Nitrous spirit of æther, twenty-five drops.

Mix them together.

645. *Rheumatism.*

Is an acute or chronic affection of the muscles: the former is distinguished from the latter by fever and by local inflammation in the part affected. The chronic has been considered as the effect of the acute: this may have been true in some instances, but in general they are unconnected. The acute rheumatism is perpetually moving from one joint to another, it occasions great pain and soreness, is attended by an irregular action of the perspiratory vessels, with more or less of fever.

Proper means should be used to lessen the force of the fever and local inflammation of the joints by general bleeding, purgatives, and sudorifics. After the bleeding and a free discharge from the bowels, the sudorific draught, mentioned page 330, may be given, or four large spoonsful of the following mixture may be taken every fourth hour:

Take of Camphor mixture, made with vinegar, an ounce and a half,
Distilled water, six ounces,
Compound powder of contrayerva, four scruples,
Nitre, two scruples,
Syrup of orange-peel, six drachms.

Mix them together.

If this medicine should induce perspiration, the patient should keep in bed and drink freely of some warm diluting liquor, as tea, barley water, &c.

The sudden transition of this disease from one part of the body to another, to the brain, the heart, or stomach, may prove fatal; therefore it ought not to be left to the care of the domestic practitioner; but, in its earliest stage, delivered over to the physician, by whose skill the symptoms may be rendered milder, and the patient conducted with safety to a state of convalescence.

The chronic rheumatism is for the most part an affection of the muscles, it attacks the head or back, arms, or lower extremities; is extremely painful, but without swelling or inflammation. The pain of chronic rheumatism is aggravated by the warmth of the bed. Persons, who are exposed to sudden changes of the atmosphere, to damp lodgings, and scanty diet, suffer most from this disease. As the gout generally seizes on the rich, the poor man is the victim of chronic rheumatism. Flannel must be worn next the skin, with strong stimulating applications to the parts affected, such as the following:

Take of Compound camphor liniment,
Rectified oil of turpentine, of each, two ounces,
Tincture of opium, half an ounce.

Mix them together. This liniment must be rubbed on the part night and morning, for fifteen or twenty minutes, unless it should inflame the skin.

The bowels must be kept regular by this electuary:

Take of Electuary of cassia, one ounce and a half,
Precipitate of sulphur, half an ounce,
Gum guaiacum, in fine powder, one drachm,
Balsam of Peru,

a sufficient quantity to form an electuary. Dose, two drachms twice a day, with half a pint of the decoction of sarsaparilla.

A moderate regimen must be observed, and a damp atmosphere carefully avoided; and by these means, with attention to the above directions, relief may be procured: the hot bath, blisters, and emetics, also tend to remove this complaint.

The following remedies will also be found efficacious:

Mixture for Rheumatism.

One ounce of salad mustard must be simmered in a pint of soft water, till the liquid is reduced to half a pint; strain it through muslin, and add a pint of milk, fresh from the cow. Let it boil only two minutes, and take a small tea-cupful, milkwarm, night and morning.

Infusion for Rheumatism.

One ounce of gum guaiacum must be bruised and put into a pint of French brandy, in which it must remain for at least thirty hours. When the gum is dissolved, shake the bottle, and pour a little of this infusion into rather more than a wine-glassful of tepid water; take this at bed-time, for three nights.

Powder for Rheumatism.

A quarter of an ounce of Turkey rhubarb, half an ounce of gum guaiacum, one ounce of nitre, one ounce of sulphur, and one ounce of flour of mustard, all finely pulverized, and well mixed together. One tea-spoonful to be taken in a wine-glass of cold water on going to bed.

Scalds, see *Burns*.

Sciatica, see *Lumbago*.

Sore Throat, see *Quinsy*.

646. Scarlet Fever.

The symptoms which mark the approach of this fever are lassitude, nausea, shiverings with a sense of coldness, uneasiness in the throat, difficult deglutition, and on inspection the tonsils appear to be enlarged and inflamed, symptoms which continue to increase till there is a general redness of the skin, which becomes more and more intense till the fourth day, when, in mild cases, the fever subsides, the skin is thrown off in a bran-like scurf, perspiration follows, and the patient becomes convalescent. When the fever, instead of being inflammatory, has a putrid tendency, there is no disease to which human nature is liable, more formidable in the rapidity of its progress, or more fatal in its termination.

After an emetic of ipecacuanha, given at the commencement of the fever, the following aperient powder should be administered, as soon as it can be procured:

Take of Calomel, six grains,
James's powder, three grains.
Mix them together.

The bowels must be kept constantly open by some mild aperient.

Saline draughts, with sweet spirit of nitre, should be taken every fourth or fifth hour.

A gargle of cayenne pepper, as here directed, should be used as soon as the tonsils become inflamed:

Take three moderate sized table-spoonsful of cayenne pepper, add to them two tea-spoonsful of salt. Pour upon them half a pint of boiling water. When cold, strain off the liquor, and mix it with half a pint of white wine vinegar.

At this particular stage of the disease the cayenne pepper gargle should be used, that it may weaken the action excited by the virus. This gargle has been considered not only as a corrective remedy, but also as a preventive, if used by those who are exposed to the contagion of this horrible malady; and with this view, a tea-spoonful should be frequently taken into the mouth and applied to the fauces. When it is used to weaken the virulence of the attack, small quantities should be suffered to pass into the stomach.

At a more advanced period, gargles will be necessary to soothe and allay irritation, such as those recommended in page 341.

When the eruption is accompanied with an intense heat of the skin, relief will be obtained by sponging the surface of the body, from time to time, with equal parts of vinegar and water, especially the head and throat; this application affords so much ease and comfort to the patient, that he is desirous of a frequent renewal of it. The tongue and inside of the lips become ulcerated, and deprived of the mucous secretion. When this happens, the following linctus should be taken into the mouth and moved about with the tongue:

Take of Mucilage of quince seed, two ounces,
Borax, in fine powder, two drachms,
Honey of roses, one ounce.

Mix them together.

The diet should be confined to gruel, milk, rennet whey, tea, coffee, pippin posset, infusion of tamarinds, or weak lemonade. There is no disease in which the *immediate* presence of the physician is more requisite, than in scarlet fever.

647. *Spitting of Blood.*

This hemorrhage, when it comes from the lungs, must be from a corroded or ruptured blood vessel, occasioned by a strong excitement of the mind, by violent exercise, or sudden exertion, by intemperance, by a suppression of some natural and periodical evacuation, or by ulceration. From whichever of these causes it arises, a cough comes on, and the blood coughed up, being mixed with mucus, is frothy and of a florid colour. In this complaint rest and silence are absolutely necessary: before the strength of the patient is reduced, bleeding from the arm will afford temporary relief, so will mild aperients, to keep the bowels regular. The diet should consist of milk, buttermilk, rennet whey, vegetables, and fruit, calves' feet jelly, with milk, but no other animal food, nor any kind of fermented liquor.

The turpentine draught, recommended to check the bleeding from the nose, might have the same good effect in this case. Or take of

The infusion of fox-glove, four ounces, and two ounces of the syrup of white poppies. Mix them together. Dose, one spoonful every fifth or sixth hour.

When accompanied by fever, or an increased action of the pulse,

Take of Carbonated kali, one scruple,
Lemon-juice, half an ounce,
Distilled water, one ounce and a half,
Purified nitre, twelve grains,
Syrup of white-poppies, one drachm.

Mix them together. The draught to be taken four times a day.

For a common beverage, take candied eringo root, two ounces; gum arabic, one ounce; hartshorn shavings, extract of liquorice, of each six drachms; balsam of tolu, half an ounce. Boil these ingredients in lime water, and barley water, of each one pint, for fifteen minutes, strain off the liquor, and add two ounces of syrup of balsam.

648. *Suppression of Urine.*

This complaint is induced by a variety of causes: from inflammation of the neck of the bladder, from an enlargement of the prostate gland, from gravel or stone, from spasmodic affections of the urethra, and from a paralysis of the muscular coat of the bladder. If from inflammation, general bleeding, opening injections, emetics, warm bath, and leeches, are the proper remedies. If from gravel or stone, the bowels should be relieved by some mild aperient; the patient should keep at rest, carefully avoiding whatever may irritate the urinary passages. If the pain be severe, opiates and warm bathing should be employed. If from spasm, bleeding, opiates, and the warm bath. If from paralysis, tincture of cantharides may be given internally, and the abdomen being denuded, should be dashed morning and evening with cold water, and a catheter used to draw off the urine. When the symptoms occasioned by gravel subside, proper remedies may be employed to correct the disposition in the constitution to form it. These effects from the above causes require the attention of the physician, or surgeon, more especially the enlargement of the prostate gland.

649. *Strains*

May be relieved and cured by friction with the hand, night and morning, with or without the following liniment:

Take, Soap liniment,
Camphor liniment, of each, two ounces.
Mix them together.

650. *Tooth Ach.*

In a decayed tooth, the nerve, when exposed to the air, becomes painful on every sudden change of temperature: it may be a rheumatic affection, or sympathetic, as in pregnancy. If the ulceration be early noticed, it may be removed, and the tooth preserved for many years; if neglected, the ulcer rapidly destroys the crown of the tooth, when the only remedy is extraction. If the tooth be hollow, caustic may be introduced to destroy the nerve: it must be washed out, and care taken not to swallow any part of it. Leeches applied to the gum afford relief; the mouth should be frequently washed with tepid water, and all stimulating applications avoided. When the pain is violent, the following tincture, poured upon lint, and placed in the tooth, generally affords relief:

Take, Æther,
Tincture of opium, of each, two drachms,
Rectified spirit of turpentine, one drachm.
Mix them together.

651. *Viper.*

The bite of the viper, or rather the effect of its poison, may be relieved by salad oil made warm, and rubbed into the part injured. If, before the oil can be procured, the swelling should become considerable, foment the limb with lime water, or with warm milk and water, and cover it with a bread and milk poultice, with a large proportion of oil.

The following is the negro Cæsar's cure for the bite of a rattle snake:

Take of the roots of plantain or horehound, in summer time, roots and branches together, a sufficient quantity; bruise them in a mortar, and squeeze out the juice; of which give, as expeditiously as possible, one large spoonful. If the patient be swelled, it must instantly be poured down the throat. If the patient finds no relief, another spoonful must be given at the expiration of an hour.

A leaf of good tobacco, dipped in rum, may be applied to the wound.

652. *Whitlow*

Commences with inflammation of the tendons of the fingers, and tendinous sheaths, through which they pass in opening and shutting the hand. At first it is confined to two joints of the fingers, but if neglected, the pain and swelling extends along the tendons and muscles, to the upper part of the arm, terminating in suppuration or gangrene. When a violent pain comes on in the fingers, with throbbing and tension, leeches should be applied, and afterwards a blister round the part inflamed. If seen at a later stage, the only chance of rescuing the patient from a train of painful and dangerous symptoms, is to make an incision through the tendinous sheath down to the bone, from one end of the finger to the other. The pain occasioned by the knife is momentary, attended with no risk, and followed by complete relief. This simple operation may prevent the loss of the tendon, ulceration of the bones, suppuration, or gangrene. The symptomatic fever should be counteracted by aperient medicines, opiates combined with antimony, or ipecacuanha, and by a vegetable and milk diet.

653. *Wounds*

May be inflicted by cutting, serrated, blunt, or pointed instruments. If by the former, bring the edges of the wound together, apply dry lint, and confine it on the part with adhesive plaster, it will heal by the first intention. If from a serrated instrument, the part lacerated will require a bread and milk poultice for a few days, until the edges of the wound become free and smooth; they may then be brought together, and treated after the same manner as wounds inflicted by a cutting instrument.

Wounds occasioned by blunt or pointed weapons, vary so much, from the violence with which they are inflicted, and are more or less alarming when the head suffers, that no general rules can be laid down for their treatment. In all cases of this kind a surgeon should be consulted.

HINTS

FOR THE

MANAGEMENT OF CHILDREN

DURING THE FIRST YEAR AFTER THEIR BIRTH.

Immediately on the birth of the child, it should be received into soft fine flannel, sufficient completely to envelop or wrap round the body, in which, with the mouth and nose scarcely exposed, it should repose at least an hour. The child may then be washed with *tepid* water, tenderly and cautiously, yet speedily made dry with soft linen cloth. Afterwards let it be expeditiously dressed, and put into a warm bed, and during the first week or fortnight exposed as little as possible to cold air; how long this caution may be necessary will depend on the season of the year, or the temperature of the atmosphere. By strictly adhering to this mode of managing a new-born infant, it will not suffer from catarrh, cough, difficulty of breathing, diarrhœa, sore eyes, or stoppage in the head.

Children are frequently placed under the care of a nurse, who, from her experience, is supposed qualified for the important trust; but it often happens, either from her obstinacy or self-importance, that the most judicious plan of treatment recommended by the attending physician is defeated.

At this period the mother is called on, by religious and moral obligation, as well as by the ties of natural affection, to suckle her infant: no doubt could be entertained of her immediate assent to so powerful an impulse, if uninfluenced by her friends or relatives. It cannot be denied, that she may be disqualified for the office by various maladies, by an incipient phthisis, by a scorbutic or scrofulous taint, by hysterical or nervous affections, &c. However, the fitness or unfitness of the mother for this endearing office should be determined by the attending physician. There are many instances recorded of women who had been extremely delicate and sickly previous to their first confinement, becoming afterwards healthy and robust. On the contrary, there are several histories of other women, who previously had enjoyed good health, suffering from counteracting the regular process of nature. The flow of the milk being checked, undue determinations have taken place to the chest or head, and in some cases proved fatal.

In the bowels of children at the time of their birth, there is an accumulation of what is called the meconium. For whatever purpose it was intended before the birth of the child, it would become injurious were it afterwards suffered to remain. Nature has provided the means of its removal, by giving to the new milk an aperient quality. Therefore it is advisable to wait, even to the third day, for the appearance of the milk, rather than attempt to remove the meconium by castor oil, or any other mild aperient medicine. The coats of the child's stomach and bowels are so extremely tender and irritable, that the mildest purgative will give pain, and disorder the health of the infant. By waiting for the milk, relief is obtained by the means nature has provided, without the slightest inconvenience.

654. *Clothing.*

The clothing for children cannot be too simple: it should be so formed as to admit of being easily and quickly changed, free from all bandages or pins, and secured only by tape. Shoes or stockings may be dispensed with, until the child begins to use its legs, as they keep the feet wet and unpleasant, unless changed every hour. The child left to itself will soon begin to enjoy the use and freedom of its limbs.

655. *Food.*

The food proper for children is a subject of more importance. That which nature has provided is the milk of its parent, which alone will be sufficient for its support, until the end of the first three months. At this period, it may require a small portion of light animal food, of which, how to select the most nutritious, to regulate the quantity, and to administer it, after proper intervals, must depend on the experience of the nurse. Experience is often superseded by convenience; if the child cries, the nurse attributes it to a want of food, and by her agency it is fed almost every hour, both night and day. It is seldom that a child cries from abstinence if it be healthy and free from pain. In the infantile state, the powers of the digestive organs are much weaker than at a more advanced period of life; and therefore, although the food is more simple, it requires an interval of some hours to convert it into chyle; if this process be interrupted by frequent feeding, the chyle will be crude, and pass off without affording due nourishment to the child. Sickness in children arises from the quality or quantity of their food, unduly administered. The food for children should be light and simple, gruel alone, or mixed with cow's milk, mutton broth, or beef tea, baked bread, rusks, or biscuits, boiled in water to a proper consistence. Sugar, spices, and vinous liquors must be avoided. A child of three months may be fed twice a day, once with the milk and gruel, or boiled biscuit, mixed with milk, and once with the broth or beef tea. The great mortality of children, in large towns, may be attributed to the poverty of their parents, who cannot purchase the necessary food or clothing, nor find leisure to attend to cleanliness, air, and exercise, so indispensably necessary to the well being of their offspring. In the wealthy ranks of society these means are easily obtained; and in the management of their children, we have only to dread the abuse of these advantages. Happy would it be both for rich and poor, if the superfluities of the one could be transferred for the benefit of the other.

When six months old, a child may be fed three times a day; there is no period of life which can require a more frequent supply of food. Nothing can be more injurious to health than too frequent or irregular meals. Children, if left to themselves, soon acquire the habit of passing through the night without being fed. The good effect of simple food, and stated hours, is exemplified in our public schools, where the boys enjoy health and spirits. During their vacations, when they indulge in a variety of food, unrestricted as to quantity or to hours, they soon complain of lassitude, or sickness, head ach, and fever.

656. *Weaning*

Of children should not take place under six months, if the mother be in health, nor be deferred beyond nine months. It cannot be too frequently impressed on the mind of the parent, that the future health and strength of her child depend on a due supply of the food which nature has provided. Regarding her own health, the chances are that it will be improved—at all events, it is incumbent on her to make the experiment; if her strength falls off, she may at any time retire from the effort, and engage a wet nurse.

This *Foster Parent* should not be more than thirty years of age, nor should her milk be more than three months old. She should be in health, free from scorbutic or scrofulous taints, from cutaneous scurf, or eruptions, perfectly clean in her person, and extremely neat in her management of whatever concerns the child. She must be sober and temperate: her diet should consist of a due proportion of fresh meat and vegetables; her drink, table beer, or milk and water: (a moderate quantity, not exceeding a pint in the course of the day) of home brewed ale, mild and fresh, may be allowed, but on no consideration either wine or any other spirituous liquors. These, if drank by the nurse, will prove injurious to the child.

657. *Proper Medicines for Infants.*

Nature has not only provided food for infants, but likewise given to them a constitution capable of correcting those slight deviations from health, to which alone they are liable when properly nursed. This has induced many to assert that medicines are not required in the nursery: perhaps the assertion might be correct, if children were suffered to remain in a state of nature: the farther they are removed from it, the evils they have to contend with bear a proportionate increase. As most of their complaints arise from a want of attention to their food, to air, and exercise, by a prompt and skilful use of medicine, these complaints may be removed; therefore, it is not the use but the abuse of medicine that should be avoided. If a child be tormented by a pin running into the flesh, no one would contend against the removal of the pin.

The diseases to which children are liable, are sore eyes, sore ears, sore head, scald head, sickness and vomiting, thrush, red gum, yellow gum, pain in the bowels, diarrhœa, dentition, chilblains, rickets, worms, scrofula, catarrh, cough, measles, &c.

658. *Sore Eyes*

Frequently occur on the second or third day after the birth, occasioned by too early an exposure of the child to a cold atmosphere: the eyelids swell, become closed, and discharge a purulent matter. It may be relieved by fomenting the eyelids with equal parts of lime water, and elder-flower water. Dip some fine old linen cloth into this mixture, moderately warmed, and apply it to the eyelids. This is a mild astringent application: if the swellings should not be reduced by it, the following, which is more astringent, will probably succeed:

Take of White vitriol, two grains,
Rose water, two ounces.
Mix them together.

Should it be necessary, the quantity of white vitriol may be increased.

659. *Sore Ears.*

Excoriations of the skin frequently happen either behind the ears, in the folds of the skin, on the neck, in the groins, or wherever the folds of the skin come in contact. Wash the skin morning and evening with cold water, make it perfectly dry with a fine linen cloth, then shake on lightly the following powder:

Take, White ceruse, one part,
Wheaten starch, in flour, three parts.
Mix them together.

Or, Take Goulard's extract,
French brandy; of each, one drachm,
Rose water, four ounces.
Mix them together, and apply it with soft linen cloth to the excoriations of the skin.

The following liniment may be relied on:

Take, Acetate of lead, one scruple,
Rose water, half an ounce,
Melted beef marrow, one ounce.

Rub the acetate of lead in the rose water, until they are intimately mixed, then melt the marrow over a gentle heat, afterwards pour the mixture upon the marrow by little and little, taking care that each addition be incorporated with the marrow, so as to form an uniform mass. This may be applied with a camel's hair pencil.

660. *Sore Head.*

This complaint appears first on the forehead, in large white spots or scabs, which if neglected, soon spread over the whole surface of the head. It is sometimes dry, at others moist, with a thin watery discharge. It is named the crusta lactea, or milky crust. There are two methods of treating it. Nurses encourage the discharge by applying cabbage leaves, oil cloth, &c this is by no means necessary, it makes the head offensive, and the appearance of the child disgusting. It is much better to cure it as soon as possible, by washing the scabs night and morning with equal parts of brandy and water; then lay on the following ointment:

Take, Olive oil, five drachms,
White wax, two drachms,
Calcined zinc, one drachm.

Melt the oil and wax together, then add the zinc by degrees, and keep stirring it until they are intimately mixed.

661. *Scald Head*

Is totally unlike the preceding disease: brown coloured scabs appear on the crown of the head, which discharge a glutinous matter, and unite the hairs, so as to prevent their being separated with a comb:

these scabs continue to spread until they occupy the whole of the scalp.

Keep the hair cut as close as possible, wash the head with a strong solution of soap in water, night and morning: as soon as it can be done, instead of cutting the hair with scissars, let it be shaved close once a day.

Every one has a remedy for this complaint: perhaps the following ointment will be found one of the most effective:

Take, Barbadoes tar, one ounce,
The dust of the lycoperdon, or puff fungus, one drachm.

Mix them well together, and rub in a part of it to the roots of the hair, after washing the head with the soap and water. By steadily persevering in these means, and giving an occasional purge, the cure will soon be accomplished.

662. *Sickness and Vomiting.*

Soon after the birth, children are frequently annoyed by these symptoms: they are occasioned by the indiscreet conduct of the nurses, who are apt to give either improper food or medicine. At this early period, as before remarked, the stomach is incapable of digesting any other food than the milk of its mother; consequently, whatever is forced into it, remains there undigested, until, by a convulsive effort, it is thrown off by vomiting. So long as it remains in the stomach, the child is restless, and in other respects indisposed. It may be relieved by a tea-spoonful of castor oil, to be repeated, until one or two motions are occasioned.

Children who are dry nursed are most subject to sickness and vomiting; the natural remedy is the breast of a healthy woman. Without this relief, gripings and diarrhœa frequently come on and prove fatal.

Children so circumstanced, may be relieved by the following emetic:

Take of Ipecacuanha, two drachms,
Boiling water, four ounces.

Let them stand together until the water grows cold, then strain off the liquor. To one ounce of the liquor, add eight drops of antimonial wine. Dose, two tea-spoonsful every half hour, until it excites vomiting.

663. *The Thrush,*

Or sore mouth, is a complaint very painful, and, if neglected, fatal to children. When it first comes on, it resembles small pieces of curd lying loose upon the tongue; it gradually spreads itself over the inside of the mouth, but afterwards rapidly advances to the throat, stomach, and bowels. Therefore, when the white specks appear, proper means should be instantly employed to remove them, or to suspend their progress. If the child be costive, give the following aperient:

Take of Calcined magnesia, two scruples,
Common mint water, two ounces.

Mix them together. The dose, a dessert-spoonful every half hour: until it operates: or,

Take of Manna, one ounce,
Senna leaves, one drachm,
Common mint water, four ounces.

Boil them together, until the manna be dissolved, then strain off the liquor. Dose, two drachms every half hour, until two or more motions are occasioned.

For cleaning the mouth, take equal parts of borax and white sugar; rub them together into a fine powder. Of this put a small quantity into the child's mouth, which will be distributed to every part by the motion of its tongue. Repeat this application three or four times a day: if used early, it will keep the mouth free from white specks, and remove the complaint in a few days.

If, on the contrary, it should be neglected, and suffered to extend to the stomach and bowels, gentle emetics ought to be employed, such as the following antimonial emetic:

Take of Antimonial wine, forty drops,
Mint water, two ounces.,

Mix them together. Dose, a dessert-spoonful every half hour, until it excites vomiting.

This disease rarely occurs in children, who take no other food but the milk of the mother, or foster parent. It is so far contagious, that if a healthy child be put to the breast of a woman, who is suckling another child, having the thrush, it will contract this complaint.

664 *Red Gum*

Requires no farther attention than keeping the bowels gently open, and avoiding an exposure to cold air. It is symptomatic of healthy action, and ought not to be checked.

665. *Infantile Jaundice.*

The skin of new-born infants is sometimes tinged with bile, and gives the appearance of jaundice; by some it has been named the yellow gum. It seems to be occasioned by the sudden change in the circulation of the blood, immediately on the birth, by which an increased flow of blood is conveyed to the liver, and consequently an increased secretion of bile follows, which from various causes may be prevented from passing off freely into the intestines. It is attended with no danger, and is generally removed by mild purgatives.

The hare-lip, frænum linguæ, or tongue-tied, require surgical aid.

666. *Pain in the Bowels*

May happen with or without diarrhœa, and is often produced by improper food, or exposure to cold air. The symptoms are frequent fits of crying, drawing up the knees towards the bowels, which are hard and tense to the touch, accompanied either with an obstinate costiveness, or thin, watery, and frequent evacuations, slimy, sour, and of a green colour. This complaint is oftentimes relieved by the following powders:

Take, Turkey rhubarb, in very fine powder,
Calcined magnesia, of each, twelve grains,
Compound powder of ipecacuanha, four grains.

Mix them well together, and divide them into six doses: one to be given night and morning, to a child under three months; above that age, the dose should be increased.

The health and diet of the mother, or nurse, should be strictly attended to. In some cases the pain is extremely acute, and the agony of the child is known by its cries. Whenever this happens, the following mixture may be given:

Take of Turkey rhubarb, in fine powder, twelve grains,
Magnesia, eight grains,
Tincture of rhubarb, one drachm,
Syrup of poppies, two drachms,
Simple mint water, an ounce and a half.

Mix them together. Dose, if within the first or second month, two tea-spoonsful every fourth hour. The phial should be shaken before the medicine is poured out.

When the disease proves obstinate, it may be necessary to give the following antimonial emetic:

Take one grain of emetic tartar, dissolve it in two ounces of water, and give one drachm every half hour, until it excites vomiting. If three or four months old, the dose may be increased to three drachms.

In diarrhœa, the child suffers from the excoriations, occasioned by the frequency of its motions, which cause inflammation of the skin. This may be relieved by the following application:

Take, Goulard's extract,
French brandy, of each, thirty drops,
Distilled water, four ounces.

Mix them together, and apply the lotion moderately warm; the part being first washed and made perfectly dry.

A great variety of cordials, spices, and opiates, have been recommended, and frequently used to relieve the pain and expel the wind. They may sometimes answer the purpose, especially in sudden fits of pain in the stomach, from cold or any other accidental cause. At all times, they should be sufficiently diluted with water, cautiously given, and seldom repeated. When the effects of these medicines go off, the pain returns; therefore it is not a desirable mode of obtaining relief. Of the cordials, Geneva, mixed with water, is the least objectionable; being impregnated with the essential oil of juniper berries, it is an excellent and safe carminative. However, these warm medicines are by no means to be relied on for the removal of the cause of this malady, their effect being merely temporary: such are Godfrey's cordial, and other nostrums, being compounds of opium, spices, and brandy. Opium, when judiciously administered, is an invaluable remedy; the dose of it should be most accurately proportioned to the age of the patient, and urgency of the symptoms, otherwise it may become a *poison*; and, therefore, should never be given to children, unless under the direction of the most skilful in the profession. Few nurseries are without a medicine of this kind; it quiets the pain of the infant, induces sleep, and leaves the nurse to her repose. Children under this treatment become languid, pallid, incapable of exertion, and at length rickety. Opium alone, or combined with carminatives, is not to be dispensed with under certain circumstances; it should be given in small and repeated doses, rather than in full ones, and the bowels should be kept regular by mild aperient medicines during its use.

The following anodyne mixture will generally relieve the griping pains of diarrhœa:

Take, Prepared chalk,
Gum arabic, of each, one drachm,
Syrup of white poppies, three drachms,
Geneva, two drachms,
Water, four ounces.

Mix them together. Dose, a dessert-spoonful after each motion.

In bowel complaints, chalk has been objected to, as too powerful an astringent in checking diarrhœa suddenly: this may be obviated by giving it only after each motion. When the bowels have been previously acted on, either by the rhubarb powders, or by the antimonial emetic, the chalk mixture is a never-failing remedy. It may be given with or without opium, according to the urgency of the symptoms.

The following medicine, by exciting a determination to the skin, effectually relieves the sufferings of the child:

Take, Ipecacuanha, in coarse powder, two drachms,
Boiling water, four ounces.

When cold, strain off the liquor through a fine piece of linen cloth; then add to three ounces of this liquor,

Of Geneva, three drachms,
Syrup of white poppies, two drachms.

Dose, a dessert-spoonful every fourth hour.

When this state of the bowels is followed by convulsions, the lower extremities, or the whole body, *should be immersed in a warm bath; during the* preparation of a bath, flannel dipped in warm water and rung dry, may be applied to the extremities. Leeches and blisters, under skilful directions, will subdue the violence of the symptoms.

Convulsions are generally symptomatic, and, for the most part, in children occasioned by the growth of the teeth: therefore, the gums should be carefully examined, to ascertain whether they arise from this cause; if so, the lancet should be immediately and freely used, to divide the gum down to the teeth. This operation is not painful, nor in the least degree hazardous, therefore ought not to be delayed.

667. *Dentition.*

There is no period in infancy that requires more skill and attention, than that which passes from the first movement of the teeth in their sockets, to their subsequent advance through the gums. At the birth of the child, the teeth are lodged within the jaw-bones, and enveloped by a membrane or bag, which is distended, as the teeth enlarge and press forward, frequently attended with pain, fever, diarrhœa, and convulsions. These symptoms first appear towards the end of the third month, when the child is said to be breeding its teeth; they arise from the first enlargement of the teeth in their sockets, and subside as soon as they pass above the jaw. Between the sixth and ninth month, the teeth as they rise press upon the gums, when the same train of symptoms take place. Some children suffer very little pain during this process, others suffer most severely; this depends chiefly on the nerves being more or less irritable. When the child preserves its appetite and cheerfulness, and is free from fever, no medicine can be required, except what may be necessary to obviate costiveness. This should be carefully attended to, as nothing tends more effectually to relieve or prevent the symptoms of dentition, than a free discharge from the bowels.

An increased secretion of saliva marks the first advance of the teeth, followed, in irritable habits, by diarrhœa, fever, thirst, and convulsions. The use of the gum lancet should not be neglected, whenever the symptoms are urgent. The parents frequently object to this mode of relief, conceiving it to be a painful operation: as a proof of the contrary, children that have once been relieved by it, will eagerly press their gums upon the lancet. If the tooth should not appear after the first use of the lancet, the incision may be frequently repeated.

The symptoms may be relieved by the following emetic:

Take of tartar emetic, one grain.

Dissolve it in two ounces of distilled water. Dose, two tea-spoonsful every half hour, until it excites vomiting.

This remedy will relax the tension of the gums, and lessen the force of the fever.

If the habit of the child should be costive, the mildest purgatives should be employed, to occasion two or more motions daily; such as manna dissolved in common mint water, or senna tea, or the following:

Take of Senna leaves, one drachm,
The yellow rind of the lemon, eight grains.

Boil them in two ounces of water, strain off the liquor when cold, and give a dessert-spoonful as a dose for children three or four months old: or

Take Manna and fresh drawn oil of sweet almonds, of each, one ounce,
Syrup of roses, two ounces.

Mix them together. Dose, a dessert-spoonful.

668. *The Croup*

At its commencement has the appearance of common catarrh, but speedily assumes its peculiar character, which is marked by hoarseness, with a shrillness and ringing sound in coughing and breathing; so shrill is the noise made by the child, that it resembles the sound of air forced through a tube of brass. This inflammation, seated in the membrane which lines the windpipe, is attended with stricture, difficult respiration, cough, quick pulse, heat, and a flushed countenance.

This disease comes on suddenly, and is extremely rapid in its progress; therefore, vigorous measures must be instantly adopted. Bleed freely, afterwards give an emetic, then apply a blister across the throat, and keep the bowels open with laxative injections. If these means are neglected, an exudation of lymph takes place, on the internal surface of the membrane lining the windpipe, which, as it cannot be removed, proves fatal to the patient. This disease was little known fifty years ago, when it was thought peculiar to young children. The name is now more generally applied to violent inflammatory affections of the throat, whether in children or adults.

669. Rickets

Are for the most part induced by improper food and bad nursing. Their approach is marked by a sickly, pallid countenance, cough, and difficult respiration. The bones of the legs and arms lose their firmness, and become more or less crooked; the bones of the head do not unite, and the spine becomes distorted At its first appearance it may be successfully counteracted by a strict attention to cleanliness in every thing that concerns the child, by exercise in the open air, by cold bathing, by friction of the limbs night and morning, and by a light nutritious diet. Before the use of the bath, the bowels should be cleared by the following aperient powder:

Take of Rhubarb, in fine powder, six grains,
Calcined magnesia, three grains,
Common mint water, six drachms.

Mix them together.

During the use of the cold bath, either Peruvian bark or steel may be employed to strengthen the child: such as

The precipitate of the sulphat of iron, three grains,
Syrup of cinnamon, a tea-spoonful.

When mixed, to be taken three times a day. Or

Take of The resinous extract of bark, one drachm,
The syrup of cinnamon, seven drachms.

Mix them together. The dose, a tea-spoonful three times a day.

670. Scrofula,

Although it has been considered as an hereditary disease, may be induced in a child, whose parents have no such taint, by a neglect of proper food, air, and exercise. On the contrary, when the taint does exist in the parent, the offspring may pass through life with the enjoyment of tolerable health, by a strict attention to those means which are known to invigorate the body. Of preventives, there are none so efficacious as sea air, sea bathing, and the internal use of the sea water, in sufficient quantity to act on the bowels, and the local application of it to the glands which are enlarged. Indeed, the children of diseased parents should reside on the coast, in order to have the full benefit of these advantages. Friction should be applied generally on the surface of the body, with the hand covered with a flannel glove, night and morning. Food of easy digestion is to be preferred, such as shell-fish, game, poultry, beef or mutton. Bark and steel, as medicines, may be occasionally administered with good effect. This disease, which bids defiance to the regular physician, cannot with propriety be placed on the list of casualties, or sudden seizures.

671. *Worms.*

There are three species of worms which infest the intestines, namely, the flat worm, or tænia; the long round worm, or lumbrici; the short round worm, or ascarides. The tænia is of rare occurrence when compared with the lumbrici or ascarides, but more difficult to remove. Full doses of sulphat of iron, with occasional active doses of calomel, force them to retire. The lumbrici are destroyed by repeated doses of calomel and scammony. The ascarides, being found in the lowest portion of the intestines, are easily removed by injections of lime water, or a solution of aloes. Worms occasion a great variety of symptoms; and as they frequently are discharged during fever, they have been considered as the remote cause of it: in fact, they are annoyed by the increased temperature of the body, and endeavour to escape from it. Respecting their origin, there is a great variety of opinion. They are seldom destructive, yet frequently excite restlessness and great irritation.

672. *Chilblains*

Appear on the fingers, toes, and heels, at the commencement of winter. They are small swellings immediately under the skin, at first of an ash colour, gradually changing to a purple tint, itching violently, and if neglected they become extremely painful and ulcerate. They may be prevented or cured by keeping the parts warm and dry. When ulceration has commenced, the patient should be confined to his bed, where rest and an uniform degree of heat will effect a speedy healing of the ulcers. There are applications, if early applied, that will disperse the swellings:

Take of Camphor, two drachms, dissolve it in
Rectified spirit of turpentine, six drachms,
Then add Tincture of cantharides, two scruples.
To be applied night and morning. Or
Take Compound camphor liniment,
Rectified spirit of turpentine, of each, equal parts.
Mix them together. To be applied twice a day.

Cerate for Chilblains.

Take honey and turpentine, of each, four ounces; fine wheat flour, a sufficient quantity. Melt the honey and turpentine together, then add the flour. Spread it upon linen cloth, and apply it to the chilblains.

673. *Hooping Cough.*

This is a violent convulsive cough, attended at its commencement with slight febrile symptoms. Its shortest duration is three weeks; during which time the symptoms may be rendered milder, or much aggravated by the mode of treatment.

The patient, during the first three or four weeks from the commencement of the attack, should be kept in an uniform degree of temperature, never below 64 degrees of Fahrenheit's scale. The diet should consist of milk and vegetables. A gentle emetic of ipecacuanha, or some preparation of antimony, should be given every second or third morning, to clear the throat and stomach from the mucus, which in this cough is copiously secreted. By these means the violence of the disease will be subdued in a few weeks; whereas, by an exposure to cold air, and neglecting the means above recommended, all the symptoms may be aggravated, and may be continued for six months.

Change of air in the summer months, but not in the winter, may relieve the cough, and support the health and spirits of the patient. By strictly avoiding whatever may have a tendency to irritate the throat, or excite an increased action of the heart, the symptoms will be rendered milder and the cure speedily effected.

It can scarcely be necessary to observe, that in this, as well as every other disorder, the bowels should be kept regularly open by mild aperient medicines.

674. *A few Concise Rules for the Recovery of Persons apparently drowned.*

The body, on being taken out of the water, should be conveyed to the nearest house, *in the gentlest manner possible;* the wet clothes must be removed, and the body well dried with a towel; it must then be placed on a mattress, laid on a table of proper height and length. Care must always be taken to lay the head considerably higher than the extremities, and to place the body on the right side. The lungs should be inflated with a pair of bellows, not forcibly, but gradually, so as to imitate the action of respiration.

Do not place the body in a high degree of heat; (below 98 degrees of Fahrenheit's scale, is the best temperature); clear the apartment of all supernumerary persons, and let the windows and doors be open, to admit a free circulation of air.

Apply friction, *after the lungs have been expanded,* with the hand only, or with a little oil on the fingers.

No injections are necessary, nor emetics, except in particular cases: bleeding is also a doubtful remedy: electricity, *in judicious hands,* may prove highly beneficial.

Let no rolling of the body be used with a view of emptying it of water; there is no water present, or scarcely any. The heart being overloaded with blood, may be burst by this injudicious proceeding, and more mischief has been done by tossing and rolling the body, than by any other erroneous treatment. Hot water, in bottles, may be applied to the feet and ankles, as soon as respiration commences: when the blood begins to circulate, heat may be gradually increased, and the patient removed to a warm bed, where he must be carefully watched till the action of the heart be completely restored.

Let long and diligent application be made of the means recommended. Do not yield the case up as *irretrievably lost*, till after four or five hours' trial of the above means.

675. *Hints for Guarding against Accidents from Fire.*

The frequent accidents from fire, to which females are too often liable from the materials of their clothing, should be guarded against, by preparing the inexperienced to act with coolness, in cases of alarm, and to seek and avail themselves of the following means of subduing the progress of the flames:

They should first throw themselves at full length on the ground and roll there, unless there is a loose carpet in the room; for, as flame ascends, a horizontal position will retard its progress. If there be a loose carpet, a hearth rug, or a woollen table-cloth in the room, the sufferer should roll herself in it, (leaving the head uncovered,) for either of these, by excluding the air, would act as an extinguisher to the flame.

In every family, there should be a cloak of woollen cloth, appropriated to this purpose, and denominated the extinguisher, that it may be readily found when required.

676. *Cautions against the Neglect of wet Feet.*

Pleurisy, and many other inflammatory affections, may be induced by keeping on wet boots and shoes, after an exposure to rain or snow. There are few constitutions, however robust, that may not suffer from the chill occasioned by evaporation.

The best method for guarding against the evil, will be to put on dry boots or shoes, immediately on returning from a wet walk; and should any circumstance delay this necessary caution, it will be advisable to take a little hot water, or brandy, to counteract the chill that may have been caused; but nothing can be more mistaken than the *external* application of spirits; for the more volatile they are, the greater will be the degree of cold they occasion.

677. *Cautions in visiting sick Rooms.*

Do not venture into a sick room if you are in a violent perspiration; for the moment your body becomes cold, it is in a state likely to absorb the infection, nor visit a sick person, (if the complaint be of a contagious nature), with an *empty stomach*, nor swallow your saliva. In attending a sick person, place yourself where the air passes from the door or window, to the bed of the invalid, not between the invalid and the fire, as the heat of the fire will draw the infectious vapour in that direction, and you would run much danger from breathing in it.

678. *Syncope, or Fainting.*

When fainting comes on from loss of blood, inanition, or sudden emotions of the mind, the patient should be placed in a horizontal position, with the head gently raised. Volatile salts should be applied to the nose, and when the patient is sufficiently recovered, a few spoonsful of warm cordial medicine should be administered.

Every domestic practitioner should have it in his power to prepare medicines which are simple, safe, and efficacious; such as

679. *Alum Whey.*

Take of Alum, two drachms,
Cow's milk, one pint.
Boil them together, until the curd be formed; then strain off the liquor, and add spirit of nutmeg, two ounces; syrup of cloves, one ounce.

It is employed with advantage in diabetes, in uterine and other fluxes.

680. *Barley Water.*

Take pearl barley, two ounces; wash it, till it be freed from dust, in cold water: afterwards boil it in a quart of water for *a few* minutes, strain off the liquor, and throw it away. Then boil it in four pints and a half of water, until it be reduced one half.

681. *Laxative Whey.*

Take of The dried buds of the damask rose, one ounce,
Rennet whey, one quart.
Let them stand together twelve hours, then strain off the liquor, and add of crystals of tartar, and white sugar, a suitable proportion, to render it more active, and at the same time more palatable.

682. *White Wine Whey*

May be instantly made, by mixing two ounces of cow's milk with one ounce of white wine, and pouring upon it half a pint of *boiling* water, when the curd will float on the surface. The milk and wine must not be stirred nor shaken together.

683. *Milk of Almonds.*

Take of Sweet almonds, blanched, one ounce and
a half,
Double refined sugar, half an ounce,
Distilled water, two pints.

Beat the sugar and almonds together in a mortar until they form a paste, then gradually add the water.

684. *Pippin Posset.*

Take two large apples, cut into thin slices; pour upon them one pint of boiling water. Let them stand together six hours, then sweeten with white sugar, agreeable to the palate of the patient.

685. *Simple saline Draught.*

Take of Lemon-juice, half an ounce,
Distilled water, one ounce
Sugar, half a drachm,
Carbonated kali, one scruple.

To be taken during the state of effervescence.

686. *Milk of Ammoniacum.*

Take of Gum ammoniacum, two drachms,
Distilled water, eight ounces.

Rub them together in a mortar until the gum be dissolved, then strain it.

687. *Chalk Mixture.*

Take of Prepared chalk, one ounce,
Double refined sugar, six drachms,

Gum arabic, in powder, one ounce,
Water, two pints.

Mix them together.

688. *Camphor Mixture.*

Take of Camphor, one drachm,
Rectified spirit of wine, a few drops.

Rub them together. Add half an ounce of double refined sugar, and one pint of boiling distilled, or rain water. When cold, strain off the liquor.

689. *Lime Water.*

Take of Quick lime, eight ounces,
Distilled water, twelve pints.

Suffer them to stand together one hour, then decant the liquor.

690. *Infusion of Senna.*

Take of Senna leaves, one ounce and a half,
Ginger, in powder, one drachm,
Boiling distilled water, one pint.

Macerate for an hour; when cold, strain off the liquor.

691. *Compound Infusion of Gentian.*

Take of Gentian root, sliced, one drachm,
The outer rind of a Seville orange, one drachm and a half,
Outer rind of fresh lemon-peel, half an ounce,
Boiling water, twelve ounces.

Mix them together, and macerate for an hour; then strain off the liquor.

692. *Rose Gargle.*

Take of Red rose buds, dried, half an ounce,
Boiling water, two pints,
Diluted vitriolic acid, three drachms.

Mix them together, macerate for half an hour, and draw off the liquor; to which may be added honey of roses, one ounce.

693. *Detergent Gargle.*

Take of Borax, in powder, two drachms,
Rose water, six ounces,
Honey of roses, one ounce.

Mix them together. To be used in the thrush.

694. *Musk Julep.*

Take of Musk, one scruple,
Double refined sugar, half an ounce.

Rub them well together, then add rose water, six ounces; compound spirit of ammonia, one drachm and a half.

695. *Common Gargle.*

Take of Barley water, seven ounces,
Honey of roses, six drachms,
Vinegar, half an ounce,
Tincture of myrrh, two drachms.

Mix them together.

696. *Mindererus's Spirit, now the Water of acetated Ammonia.*

Take of Prepared ammonia, two ounces,
Distilled vinegar, four pints, or as much as will perfectly saturate the ammonia.

697. *Compound Water of acetated Litharge.*

Take of Acetated litharge (Goulard's extract)
two drachms, by weight,
Distilled water, two pints,
Proof spirit, two drachms.
Mix them together.

698. *Alum Cataplasm.*

Take any quantity of the white of eggs: agitate it with a large lump of alum, till it be coagulated.

699. *Cataplasm for Sciatica.*

Take of Mustard, in fine powder, half a pound,
White pepper and ginger, in fine powder,
of each, one drachm,
Simple oxymel,
a sufficient quantity to form a cataplasm.

700. *Squill Mixture.*

Take of The milk of ammoniacum, four ounces,
Syrup of squills, three ounces.
Mix them together. Dose, two large spoonsful every sixth hour.

It is efficacious in coughs, asthma, and oppression on the chest.

701. *Anti-hysteric Julep.*

Take of Tincture of valerian, one ounce,
Tincture of castor, two drachms.
Volatile salt of hartshorn, ten grains,
Penny-royal water, four ounces,
White sugar, six drachms.
Mix them together. Dose, two large spoonsful twice or thrice a day.

702. *Cordial Julep.*

Take of Peppermint water, four ounces,
Pimento water, two ounces,
Compound spirit of ammonia,
Tincture of castor, of each, two drachms.

Mix them together. Dose, two large spoonsful twice or thrice a day.

In depression of spirits, hysterical, or hypochondriacal affections, and in the advanced stage of low fever, this is an excellent cordial.

703. *Spermaceti Ointment.*

Take of Spermaceti, half an ounce,
White wax, two ounces,
Olive oil, four ounces.

Melt them together over a slow fire, and keep stirring till cold.

704. *Compound Spermaceti Ointment.*

Take of Spermaceti ointment, two ounces,
White precipitate of mercury, two drachms and a half.

Mix them together.

It removes herpetic and other eruptions; the itch also is cured by its application.

705. *A stimulating Embrocation.*

Take of The liquor of ammonia, one ounce,
Sulphuric spirit of æther, half an ounce,
Compound spirit of lavender, two ounces.

Mix them together.

It relieves painful affections of the face, and rheumatic thickenings of the joints.

706. *Injection.*

Take of The jelly of starch, four ounces,
Linseed oil, half an ounce.
Mix them over a gentle heat, and add forty drops of tincture of opium.

To be used in alvine fluxes, to allay the irritation which occasions constant tenesmus.

707. *Cataplasm of common Salt.*

Take crums of bread, and linseed meal, of each equal parts; water, saturated with salt, a sufficient quantity to give it a proper consistency.

This poultice may be applied to the indolent swellings of the glands, in scrofulous habits, where the patient is deprived of the benefit of the sea air and water. A constant use of it will frequently occasion great inflammation of the skin, requiring a suspension of its use for a few days; but as soon as the inflammation subsides, it should be repeated. By the use of this poultice, strumous humours, and scrofulous enlargements, of a chronic nature, have been totally dispersed.

708. *Cerate of Cantharides.*

Take of Spermaceti ointment, six drachms,
Cantharides, in fine powder, one drachm.
Mix them together.

This is the proper application to keep up a constant discharge from the part, to which a blister has been applied.

709. *Mucilage of Quince Seed.*

Take of Quince seeds, one drachm,
Distilled water, half a pint,

Boil over a gentle fire, until the liquor become thick and viscid.

710. Chalk Cerate.

Take of The plaster of lead, eight ounces,
Olive oil,
Prepared chalk,
Vinegar, of each, four ounces,
Sugar of lead, three drachms.

Melt the lead plaster and oil over a gentle heat, then add the prepared chalk, keeping it briskly stirred: when of a moderate temperature, the vinegar and sugar of lead may be put in, and the stirring continued till the composition becomes solid.

711. Soap Cerate.

Take of Litharge, one pound,
White soap, two ounces, dissolved in
White wine vinegar, two pints.

Boil them over a slow fire, until the vinegar disappears: repeat the addition of the vinegar four times, and boil until it totally disappears; then add olive oil, one pound; yellow wax, 10 ounces.

712. Calamine Cerate.

Take Prepared calamine, in fine powder,
Yellow wax, of each, half a pound,
Olive oil, one pint.

Melt the wax and oil together, then gradually stir in the calamine.

This is an excellent application to excoriations of the skin, to burns and scalds, after the inflammation has been removed. When mixed with soft opium, it relieves the edges of the eyelids when obstructed.

713. *Compound Calamine Cerate.*

Take of Calamine cerate, four ounces,
Acetated water of litharge, (Goulard's extract,) half an ounce.
Mix them together.

This is a favourite application to burns and scalds.

714. *Soap Liniment.*

Take of Windsor soap, three ounces,
Camphor, one ounce,
Spirit of rosemary, one pint.
Let them digest in a moderate heat, until the soap and camphor are dissolved.

715. *To counteract the baneful Effects of Poison.*

Whenever arsenic has been taken internally, the best medicine is sulphuret of potash (liver of sulphur) dissolved in water. A few scruples should be dissolved in half a pint or a pint of water, and administered, a little at a time, as the patient can bear it.

716. *Cure for the Poison of the deadly Nightshade.*

Give the patient an emetic as soon as possible, then let him drink vinegar or lemon-juice, about a pint, (diluted in an equal quantity of water) in the course of the day, and let him walk about to prevent sleep, which would most certainly prove fatal.

717. *A Nourishing Jelly for a Sick Person.*

Put into a stone jar or jug, a set of calf's feet, cut in pieces, a quart of milk, five pints of water, a little mace, half an ounce of isinglass, and a handful of hartshorn shavings. Tie some brown paper over the jug, and put it into the oven with household bread.

When done, strain it through a sieve; and when cold, take off the fat: some of it may occssaonally be warmed up with wine and sugar. It is good taken as broth, with herbs.

718. *Restorative.*

One ounce of candied eringo root, one ounce of sago, one ounce of pearl barley, and one ounce of rice. Boil them in four quarts of water till reduced to half that quantity. Take a dessert-spoonful either in milk or wine.

719. *Another.*

Cut some veal very small, and take from it every particle of fat and skin; pound some mace or any other spice; stone and chop very small some raisins. Have ready a tin vessel with a close cover, put into it a layer of veal, two inches in depth, and strew over it a little of the beaten spice; then add a layer of raisins, sufficient to cover the veal; then again layers of veal, spice, and raisins, successively, till the vessel is within two inches of being full. Fill it up with Madeira wine; then put on the lid, so that no steam can escape; put the vessel into a pot of water, which must be kept boiling for three hours and a half; then take it out, put the contents into a strong coarse cloth, through which strain and press out the liquor into a basin or jar; when nearly cold take off all the scum, and you will have remaining a moderately stiff jelly, a spoonful of which being melted, by the cup which contains it standing for a few minutes in warm water, it will be found extremely nourishing, and soon create an appetite.

723. *Lemon Syrup, for a Cough.*

To a pint and a half of water add two large poppy heads, and two large lemons. Boil them till they are soft, press the lemons into the water, strain the liquor, and add half a dram of saffron, and half a pound of brown sugar-candy, pounded. Boil all together till the sugar-candy is dissolved, stir the whole till you perceive it will jelly, strain it a second time, and take the seeds from the poppies.

724. *Turnip Syrup, for a Cold or Affection of the Lungs.*

Roast twelve or more fine turnips in an apple roaster, press the juice from them, and add sugar-candy to your taste. Take a tea-cupful at night and in the morning.

725. *Soothing Beverage, for a Cough.*

Two ounces of figs, two ounces of raisins, two ounces of pearl barley, and half an ounce of liquorice root. Boil them together in a pint and a half of water, and strain off the liquor. A tea-cupful to be taken night and morning.

726. *Very good Linseed Tea, for a Cough.*

Simmer an ounce of linseeds, over a slow fire, in a quart of spring water, till reduced to a pint, skim and strain it; add the juice and rind of one large, or two small lemons, and half a pound of brown sugar-candy, and boil the whole till the sugar-candy is dissolved.'

727. *Cold Cream.*

Simmer together, till melted, one ounce of spermaceti, half an ounce of virgin's wax, and half a pint of oil of sweet almonds; then throw it into a wash-hand basin nearly full of water, and beat it with the hand till it becomes a fine cream. Put it in a jar and keep a little water constantly on the top, but change the water every day to preserve the cream sweet.

728. *Another, with Rose Water.*

Melt in two ounces of oil of sweet almonds, a quarter of a cake of white wax, and when melted pour it into cold water; then press it in a cloth till quite dry, and beat it for at least an hour in a pint of double distilled rose water.

729. *White Ointment for Chilblains.*

Mix well together half an ounce of white ointment, an ounce of ointment of roses, three drams of white precipitate, and four drops of oil of nutmeg.

730. *Warren's Milk of Roses.*

Two ounces of rose water, a tea-spoonful of oil of sweet almonds, and twelve drops of oil of tartar must be put into a bottle, and the bottle well shaken till the whole combines.

731. *Eye Water.*

Infuse in boiling water till cold, half an ounce of poppy heads, and the same quantity of chamomile flowers. Strain this mixture, and add two tablespoonsful of vinegar, and one of brandy. Apply it warm, night and morning.

732. *Another.*

Put into a two ounce phial, fifteen drops of laudanum, fill it with two-thirds of rose water, and one-third of rectified spirits of Mindererus. Use it with a sponge.

733. *Pomade Divine.*

[This receipt was copied from the original given by the Carmelite nuns.]

Take of beef marrow, one pound and a half, well cleaned from the bones and skin; put it into an earthen vessel with spring water, which must be changed twice a day for ten days; drain it well, and let it lie twenty-four hours in a pint of rose water: then dry it in a clean cloth, add storax, benjamin, cypress and orris root, in fine powder, of each one ounce; cloves and nutmegs, two drachms; and half an ounce of cinnamon; carefully mix them with the marrow. Put the mass into a silver cup with a cover, tie it close down with a fine cloth, and immediately over it lay on a paste made with the white of eggs and flour, and upon that another piece of cloth. The cup must be suspended in a copper of boiling water for three hours; afterwards pass the liquor through muslin into the cups you intend to keep it in, and tie it down the next day. During the preparation, it should not be touched but with a silver spoon.

It is an excellent application for cancers, scrofula, piles, fistula, bruises, gouty and rheumatic pains, &c.,&c. Let it be rubbed in before the fire, as near to the seat of pain as possible.

ADDENDA.

734. *Method of employing Fallow-Grounds to Advantage.*

I PLANTED, on about half an acre of fallow of an indifferent quality, the soil inclining to sand, some potatoes in straight lines, two feet asunder, and the plants forty inches distant in the rows, ploughing the intervals three times in the summer, that is to say, every six weeks.

The plough that was used was very light, and without wheels, and with two horses, one going before the other; it was easy to draw two furrows, about five inches deep, without much damaging the roots.

My workmen, at first, smiled at my attempt; the potatoes sprouted but slowly, and did not seem to promise any great success, but after the first ploughing they got forward; and after the other two ploughings were, to the full, as forward as those of my neighbours which had been plentifully dunged.

Finally, after the third ploughing, every one was astonished to see that the stalks of my potatoes, which had not been at all dunged, were fresh and green, when the stalks of others, which had been dunged, were turned yellow, withered, and almost dry.

In a word, this piece of ground yielded me in autumn half as many potatoes as the same quantity of land would have done in the ordinary method of planting, and these were all of a delicious flavour.

Remark.—Potatoes, however, are known to be a scourging crop: they require as much dung, or (if it be withheld) will impoverish the ground as much as a crop of oats. By putting straw into the furrows, where the roots are dropped, or even by keeping the earth loose by frequent stirring, a tolerable crop of potatoes may often be raised without dung; but more injury is done to the ground than the value of the crop of potatoes will repay.

735. To prevent Hay-stacks from taking Fire.

When there is any reason to fear that the hay which is intended to be housed or stacked, is not sufficiently dry, it is only necessary to scatter a few handfuls of common salt (muriate of soda) between each layer. It would be very ill-judged to regret this trifling expense; for the salt, by absorbing the humidity of the hay, not only prevents the fermentation and consequent inflammation of it, but it also adds a taste to this forage, which stimulates the appetites of cattle, assists their digestion, and preserves them from many diseases.

Remark.—The cattle like a little salt, but it has little effect in preventing inflammation.

736. Method of preventing the Smut in Wheat.

I have seen a great deal, read a great deal, heard a great deal, of the benefits arising from steeping seed-wheat in brines and other preparations, to prevent its being smutty; some have answered, others have miscarried; but I always observed, that if the seed was well washed, it failed not.

I took the hint, washed well in a large tub some seed I knew to be smutty. I washed it, I say, in plain simple water, stirring it violently with birchen brooms, and took care, from time to time, to skim off the light corn, impurities, &c.

737. To make a Quickset Hedge or Fence.

Quick fences often become open in many places at bottom, notwithstanding the utmost attention, and more especially if neglected. The barberry shrub, on the contrary, will make an impenetrable fence, and always close at the bottom, because it puts up numerous suckers from the roots, which fill every vacancy. It may as easily be raised from the berries as quick or hawthorn, and it grows faster. The suckers also will strike root easily, especially if planted early. These shrubs may be had at most nurseries. The barberry, however, can never make so strong a fence as a good, well-trained hawthorn hedge. But there are situations where it may be preferable; on the top of a high bank (for it is comparatively a light shrub), as in the Devonshire hedges, for mixing with other plants in a hedge, or stopping gaps in an old hedge. For the last purpose the common sweet-briar (the seedlings of which may be raised in almost any situation for 10*s*. a thousand) is also excellent.

738. *Great Advantages of Ploughing with Oxen instead of Horses.*

A team of four young horses will frequently cost a hundred or a hundred and twenty guineas, and in six or seven years' time will be mere jades; whereas, on the other hand, a much less sum will purchase four capital six-year old oxen, which, after they have worked five or six years, and have been kept at two-thirds of the expense of horses, will fetch as much or more than their first cost.

Remark.—The advantage of preferring oxen to horses, however, is disputed by the most eminent practical farmers. The principal point is, that the profit of a farmer, particularly in bad seasons, often depends on the getting his work done within a given time. In emergencies, a horse may be fed up to almost any work. But an ox, however fed, will sink under his labour, if tasked beyond his ordinary rate. The farmer does not lose his half-worked horses, for there is a demand for them by higglers, petty carriers, and others, to whom of course he sells them when they become less fit than at first for his more severe work. The argument is stated as fully, and perhaps as temperately, in the article "*Agriculture*," in the "*Edinburgh Encyclopædia*," as in any other place. It is too long for this collection.

739. *Useful Hints relative to Carters and Teams of Oxen.*

Do not retard the growth of your beasts of draught, endanger their health, render them insignificant in the eyes of the many, and disgustful to their keepers, by working them too young. There is no danger of their becoming unmanageable; nose-rings will reclaim them, be they ever so riotous; nevertheless, the younger they are inured to light work, the more docile they will generally become.

Do not expect that they can work constantly on straw, nor expect to find them alert and spirited, while their buttocks are clodded with dung, and their coats throughout are filled with dirt and vermin.

Divide them into teams of four; let each team be fed by its respective carter. To give the man consequence with his fellow-servants, provide him with a currycomb lackered on the back, and a brush bound with gilt leather. With these he will take a delight in combing off the dirt, and brushing out the dust and filth. The ox, too, after the sensation becomes familiar, partakes in the pleasure, and will momentarily forego his meal to receive the full enjoyment. His feeder perceives this, and brushes the part which gives the most pleasure. The ox shows his gratitude by wagging his tail; the carter, in return, calls him by his name, and ingratiates himself with him. Thus, not only an intimacy but a mutual affection is formed, which at once gives attention to the keeper, and docility to the ox, and renders the labour of both pleasant.

A good carter feeds his cattle early and late, and by little and little, being careful not to give more at once than they will eat immediately.

Their labour and their fodder ought to be so proportioned, that their health and their spirits are kept in full tone. Their coats ought to be sleek; their hides loose and silky; the flank should fill the hand; and the shoulder handle mellow. If they be overworked or under fed, disease and sluggishness must inevitably follow. A working ox ought always to *be beef*, that, in case of accident, he may grace, at least, the poor man's table.

If oxen be introduced into a horse-team country, not only attention, but some address is necessary.

710. *The Everlasting Pea, a valuable Crop for Cattle.*

The everlasting pea, commonly grown in gardens, would make an advantageous crop, especially in stony land, when the ground is broken up. When once sown, it will bear a crop for many years, without any annual trouble, except scattering some manure, and getting in the crop. It should be cut for green food.

Dr. Anderson says, that the pods strained or bruised would yield a great supply of food for cattle.

711. *The Virtues of Hay Tea for Cattle.*

When there is a scarcity of hay, the following experiment will be found a valuable succedaneum to the cattle, and a great saving to the farmer.

Boil about a handful of hay in three gallons of water (and so in proportion for any greater or smaller quantity), or if the water is poured boiling hot on the hay it will answer nearly as well. Give it to the cattle and horses to drink when cold; or if the cattle or horses are any way ill, and under cover, give it them blood warm.

This drink is so extremely nutritive that it nourishes the cattle astonishingly, it replenishes the udder of the cows with a prodigious quantity of milk, makes the horses stale plentifully, and keeps them healthy and strong; and by this method one truss or hundred of hay will go as far as eight or ten otherwise would do. The cattle and horses will not seem to like it at first, but if they are kept till they are very thirsty, they will drink freely of it ever afterwards.

Farmers and others, in Sweden, and other cold countries, who have cattle and horses, when they are in want of fodder, constantly pursue this method, and find the good effects of it; and there is no doubt but this method would have the same good effect on sheep in severe weather, when the sheep are housed, or the land covered with snow, especially if there were given a small quantity of salt, (a practice used in Spain to make the wool fine and soft,) to strengthen the sheep, and prevent the rot, for the stronger the sheep are the greater quantity of wool they will produce, and which will be much finer and softer than when the sheep are lean and weak.

The hay, after being used as before-mentioned, and dried, may be used as a litter for horses or cattle; it makes very good manure, and saves straw, which will be a considerable advantage, especially when there is a scarcity of that article.

N. B. By a handful of hay, is meant as much as a person can grasp in his hand from a parcel of loose hay. And it is presumed and wished, as the above method is so easy and safe, that no person, who has cattle, cows, horses, or sheep, will neglect to try it.

This method was followed with a cow, which was kept in a large city for the sake of the children, where no green food could easily be got in winter, except the refuse of the vegetables used in the family. Boiling water was poured into a tub half filled with hay, and the tub was covered till cold. But the cow ate the hay as well as the tea, seemed to be fond of both, and it was thought the milk was more plentiful. It was, in fact, a succedaneum for green food.

712. *A profitable Way of fattening Pigs.*

Put four pigs in a sty, for they feed best in company, but if there are too many they are apt to quarrel; feed them moderately the first week, and thrice during the second week mix with their barley-meal as much antimony as will lie on a shilling; and the third week twice give them the same quantity. I need scarcely observe it is in powder.

This purifies the blood, gives them an appetite, and makes them thrive apace.

713. *To prevent Cows from contracting bad Habits while Milking.*

Cows should always be treated with great gentleness, and soothed by mild usage, especially when young and ticklish, or when the paps are tender, in which case the udder ought to be fomented with warm water, before milking, and touched with the greatest gentleness, otherwise the cow will be in danger of contracting bad habits, becoming stubborn and unruly, and retaining her milk ever after. A cow never lets down her milk pleasantly to the person she dreads or dislikes. The udder and paps should always be washed with clean water before milking; but care should be taken that none of that water be admitted into the milking pail.

714. *Successful Experiment of rearing Calves without Milk. From Transactions of the Bath Society, vol. 5.*

SIR, *Tytherton, Dec. 3, 1789.*

The following is as near a calculation of the expenses of rearing my calves without milk, as I can at present assert. In the year 1787, I weaned seventeen calves; in 1788, twenty-three; and in 1789, fifteen. I bought, in 1787, three sacks of linseed; I put one quart of the seed to six quarts of water, which, by boiling ten minutes, became a good jelly; this jelly is mixed with a small quantity of the tea of the best hay, steeped in boiling water.

Having my calves to drop at different times, I did not make an exact calculation of the expense of this hay tea, but out of my three sacks of seed I had better than two bushels left at last. I gave them the jelly and hay tea three times a day; to the boy, who looked after them, 6*d.* per day: the price of the linseed was 4*s.* 6*d.* per bushel; the whole three years' seed, 2*l.* 5*s.*

My calves are kept in a good growing state, and are much better at this time than my neighbours, that are reared by milk: they do not fall off so much when they come to grass.

I am, &c.

THOMAS CROOK.

745. *To make Hay Tea for Calves.*

Take about one pound of red clover hay, well got in, and six quarts of clear spring water; boil them together till the water is reduced to four quarts; then take out the hay, and mix a pound of barley, oat, or bean meal, amongst a little water; put it into the pot or caldron, while it is boiling, and keep it constantly stirring until it is thickened. Let it cool, then give it to the calf, adding as much whey as will make a sufficient meal. This is a cheap way of rearing calves, and the valuable article of milk may be saved for other purposes.

746. *To prevent Sickness in Calves about Michaelmas.*

Take newly-churned fresh butter, without salt, and form of it a cup the size of a hen's egg; into this cup put three or four cloves of garlic bruised, and fill it up with tar; do so for each calf: put this cup, &c. down each calf's throat; immediately afterwards put into the calf's nostrils half a table spoonful of spirit of turpentine; then tar the calf's snout well, and keep them within doors for an hour. The calves ought to be housed the night before this medicine is given.

717. *Substitute for Flax.*

Steep *broom-twigs*, or the former year's branches, (preferring the most vigorous shoots) for two or three weeks more or less, according to the heat of the season, in stagnant water; or boil them for an hour in water. This done, the flax separates freely from the twigs; and where there is not machinery for the purpose, it may easily be stripped off by children or others, when not quite dry, in the same manner as hemp is pulled from the stalks. When stripped from the twigs, the flax requires only to be well washed in cold water, then wrung and shaken well, and hung out to dry, previously to its being sent off to the paper-manufacturer, &c. —Professor Davy has bleached some of it for the Rev. James Hall (to whom we owe this valuable discovery), who has also seen it spun. The same gentleman also observes, that the fibres of all kinds of mallow, especially those of the *malva sylvestris*, are particularly beautiful; they are finer than camel's hair, to which they bear some resemblance, and there is no difficulty in procuring them.

What adds to the value of this discovery is, that the broom-twigs, or wood, after being cleared of the flax, and steeped for some time in boiling-water, become *tough* and beautifully white, and are worth, at a medium, from twelve to eighteen pence per pound, for making *carpet-brooms*, &c.

718. *To air Plants, and ventilate Rooms wherein they are contained.*

Plants should have air, every day in the year, to make them grow well; but this matter, in sitting-rooms, will not of course be regulated for their sakes, especially in the colder seasons. Wherever placed, however, some attention should be paid to airing and ventilating the rooms regularly, by opening the windows, and occasionally the doors, in order to excite a free circulation of air. This should be done to a certain extent every day, according to the state of the weather, except in the time of severe frost, when it would not be advisable to admit external air. But at such times, if bad weather be of long continuance, the rooms may be ventilated by means of the doors, and by exciting a current of air in the passages, or other parts of the house.

In very severe frost, or in a continuation of damp weather, moderate fires should be made for the sake of the plants, if placed in rooms not occupied. The window shutters should also be closed at night.

719. *New Method of rendering Asparagus more productive, and of producing it in every Month in the Year.*

The flowers of asparagus are found, on a strict examination, to be diœcious, although arranged by Linnæus, and other botanists, as hermaphrodite.

Those individuals which bear berries have abortive stamina, and those which have perfect stamina, are destitute of pistils, or at least have only abortive ones.

The male plants throw up a far greater quantity of shoots than the female ones, although not quite equal to them in size.

In the formation, therefore, of beds, the male plants only should be selected, which may easily be done by not planting them from the seed bed until they have flowered.

When the plants are one year old, transplant them into the other beds, at six inches distance; let them remain there until they flower, which will be, in most of them, in the second year; put a small stick to each male plant, to mark them; and pull up the females, unless you choose to make a small plantation with some of them, to prove the truth of the experiment.

As asparagus is esteemed one of the greatest delicacies which the garden affords, no person fond of it should be unacquainted with the method of producing it in every month of the year.

Towards the end of July, especially if it be rainy weather, cut down the stalks of the asparagus, fork up the beds, and rake them smooth If it be dry, water them with the draining of a dunghill; but, instead of leaving them round, leave them rather flat or hollow in the middle, the better to retain the water or rain. In about twelve or fourteen days, the asparagus will begin to appear, and, if it be dry weather, continue watering once or twice a week.

By this method, you may cut asparagus till about the end of September, at which time the hot-beds will succeed this; so that by making five or six hot-beds during the winter, you may have a regular succession of it every month of the year.

Some persons will object to cutting the same beds twice a year: to obviate this objection, leave two or three beds uncut in spring, and make a few more beds, if you choose to follow the practice.

Asparagus seed is very cheap; nor is it necessary to use so much as was formerly used in making the beds. It is better to apply a little rotten dung on the tops of the beds, and to sow some seed every year, that you may have plenty of plants for forcing and making new beds. Be not too fond of continuing the old ones, when you perceive they begin to fail, but make new ones, and force the old roots.

750. *To raise Salad quickly.*

Steep lettuce-seed, mustard, cresses, &c., in aquavitæ. Mix a little pigeon's dung with some mould, and powdered slacked lime. In forty-eight hours the salad will be produced.

751. *Liquor for destroying Caterpillars, Ants, and other Insects.*

Take a pound and three quarters of soap, the same quantity of flower of sulphur, two pounds of champignons, or puff balls, and fifteen gallons of water. When the whole has been well mixed, by the aid of a gentle heat, sprinkle the insects with the liquor, and it will instantly kill them.

752. *To destroy Ants.*

Ants are destroyed by opening the nest, and putting in quick lime, and throwing water on it.

753. *Against the Blatta, or Cock-roaches.*

Set a glazed baking-dish, filled with small beer, sweetened with coarse brown sugar, in the place infested; and place a board against it, as a bridge or ladder for the blatta to ascend. This is the best of all the remedies.

754. *To destroy Snails and Slugs.*

A few turnips, sliced and laid on the borders of the garden they infest, will attract them in the evening.

755. *To destroy Grubs.*

Cut a turf, and lay it with the grass downwards near the plant destroyed by the grub, and it will attract him.

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756. *To preserve Game in hot Weather.*

Game or poultry may be preserved for a long time, by tying a string tight round the neck, so as to exclude the air, and by putting a piece of charcoal into the vent.

757. *To purify fly-blown Meat.*

It has been successfully proved, by many experiments, that meat entirely fly-blown has been sufficiently purified to make good broth, and had not a disagreeable taste, by being previously put into a vessel containing a certain quantity of beer. The liquor will become tainted, and have a putrid smell.

758. *To detect Dampness in a Bed.*

Let your bed be first well warmed, and immediately as the warming-pan is taken out, introduce between the sheets, in an inverted direction, a clear glass goblet; after it has remained in that situation a few minutes, examine it; if found dry, and not tarnished with drops of wet, for there will often appear a slight cloud of steam, the bed is safe; but if drops of wet or damp adhere to the inside of the glass, it is a certain sign of a damp bed. Even wearing apparel, when on the person, will, in most parts of England, by the application of a warming-pan, stain glass with a slight steam, but not drops of wet. Or, take off the sheets and sleep in the blankets.

759. *Hints on warming Beds.*

In taking the coals into the warming-pan, remove therefrom any black coals in a burning state, and scatter upon those in the pan a little common salt; this will correct the unhealthy sulphureous vapour of the coals, and prevent their suffocating smell.

760. *Beef Tea.*

Take lean beef, a pound, cut it in thin slices, put it into a quart of water, boil it a quarter of an hour; then take out the meat, mince it small, and boil it a quarter of an hour more, skimming it well.

761. *Approved Method of removing Bees.*

Set the hive where there is only a glimmering light; turn it up; the queen first makes her appearance: once in possession of her you are master of all the rest; put her into an empty hive, whither she will be followed by the other bees.

762. *Useful Method of preserving Bees, as lately adopted in America.*

Instead of destroying whole swarms in their hives, to get the honey when the hives are full, they clear them out into a fresh hive, while they take the combs out of the old one; and they prevent their perishing in winter by putting a great quantity of honey into a very wide earthen vessel, covering its surface with paper, exactly fitted on, and pricked full of holes with a large pin; this being pressed by the weight of the bees keeps a fresh supply continually arising. Their most fatal destruction by severe cold they prevent, by taking as many large tubs as they have hives, and knocking out the heads, they set the other end in the ground, laying a bed of dry earth or chopped hay in it, of six inches deep; over this they place the head knocked out, and then make a small wooden trough for the passage of the bees; this is transfixed through a hole cut through each side of the tub, at such a height as to lay on the false bottom, on which is placed the covered dish of honey for the food of the bees, leaving a proper space over this, covered with strong matting; they then fill up the tub with more dry earth, or chopped hay, heaping it up in the form of a cone, to keep out the rain, and wreathing it over with straw on account of the warmth. This method is so secure, that out of a hundred tubs, a few winters since, when this experiment was tried, not one of them was known to fail. The quantity of honey this way obtained has been amazing, and besides, must every year increase, wherever the example is followed.

763. *To make Bottles Air-tight.*

This may be done without luting or grinding, and consists in only having a groove round the neck, into which the cap fits, so that the groove may be charged with water or mercury.

764. *To loosen the Glass Stopples of Smelling Bottles and Decanters.*

Rub the neck of the bottle up and down with a small key, hitting the head of the stopper every time, which will in general loosen it.

765. *To discover whether Flour be adulterated with Whitening or Chalk.*

Mix with the flour some juice of lemon or good vinegar; if the flour be pure they will remain together at rest, but if there be a mixture of whitening or chalk, a fermentation, or working like yeast, will ensue. The adulterated meal is whiter and heavier than the good. The quantity that an ordinary tea-cup will contain has been found to weigh more than the quantity of genuine flour by four drachms and nineteen grains troy.

766. *Another.*

Pour boiling water on some slices of bread, and then drop in some spirits of vitriol. This will produce a violent hissing and ebullition, if there be any of the above ingredients. For quicker despatch, the vitriol may be poured on the bread itself. Vinegar and juice of lemons will have the same effect, but in a slighter degree.

767. *New Method of making Flour without Grain.*

Take turnips, potatoes, parsnips and white beet; grind or grate them fine; then put the substance into water, and let it remain therein several hours; then strain off the water, and add fresh water in quantity sufficient to cover the substance. Continue to repeat this process until the water pours off quite clear. Then strain and press the water from the vegetable substance, which is to be dried on a kiln, or other proper convenience. When the substance is quite dry, grind it in a corn or other proper mill, until it becomes fine flour. Either of the above vegetables alone, or any two or more of them mixed together, and prepared as before specified, will answer for the purpose. The foregoing description is for the making coarse or common flour; when the best or fine flour is to be made, pare or peel the rind off the vegetables before they are ground or grated. Then pursue the same process as with the coarse or common flour.

768. *To prevent Children from eating their Food too quickly.*

Children, when very young, get into the habit of eating their food too quickly, particularly fruit, and other substances of which they are fond. To prevent their acquiring this habit, amusing devices might be employed, as cutting an apple, a pear, a piece of cake, or any other article of the same sort, into a number of pieces, arranging them in lines like an army, with one as an officer in the centre, and telling them that the whole army must be devoured, *piece by piece*, and in a regular manner! This interests little children so much, that they soon prefer it to a more speedy mode of consumption.

769. *To prevent the Formation of Crust upon the Inside of Tea-Kettles.*

Put into the tea-kettle a flat oyster-shell, and keep it constantly there, it will attract the stony particles that are in the water to itself and prevent their forming upon the tea-kettle.

Or, as the shell occasions a disagreeable noise, regularly clean the inside of the kettle. No crust forms on common saucepans which are cleaned whenever they are used.

770. *Coffee.*

The infusion or decoction of the roasted seeds of the coffee-berry, when not too strong, is a wholesome, exhilarating, and strengthening beverage; and when mixed with a large proportion of milk, is a proper article of diet for literary and sedentary people. It is especially suited to persons advanced in years. People who are bilious and liable to costiveness should abstain from it. When drank very strong, it proves stimulating and heating in a considerable degree, creating thirst and producing watchfulness. By an abusive indulgence in this drink, the organs of digestion are impaired, the appetite is destroyed, nutrition is impeded, and emaciation, general debility, paralytic affections, and nervous fever, are brought on.

771. *The Virtues of Coffee.*

Coffee accelerates digestion, corrects crudities, removes colic and flatulencies. It mitigates head-aches, cherishes the animal spirits, takes away listlessness and languor, and is serviceable in all obstructions arising from languid circulation. It is a wonderful restorative to emaciated constitutions, and highly refreshing to the studious and sedentary.

The habitual use of coffee would greatly promote sobriety, being in itself a cordial stimulant; it is a most powerful antidote to the temptation of spirituous liquors.

It will be found a welcome beverage to the robust labourer, who would despise a lighter drink.

772. *To clean Gold and Silver Lace.*

Sew the lace in linen cloth, and boil it in a pint of water, and two ounces of soap; and then wash the lace in water.

773. *To restore the Lustre of Glasses tarnished by Age or Accident.*

Strew on them powdered fuller's-earth, carefully cleared from sand, &c. and rub them carefully with a linen cloth. Oxide of tin (putty) would perhaps be better.

774. *To clean Flint-glass Bottles, Decanters, &c. &c.*

Roll up, in small pieces, some whited-brown or blotting-paper; then wet and soap the same; put them into the vessel, with a little luke-warm water; shake them well for a few minutes; then rinse the glass with clean water, and it will be as bright and clear as when new from the shops.

775. *To clean Mahogany Furniture.*

Three pennyworth of alkanet root, one pint of cold drawn linseed oil, two pennyworth of rose pink; put these into a pan, and let them stand all night: then take some of this mixture, rub it over the tables or chairs, and let it remain one hour; then take a linen cloth and rub it well off, and it will leave a beautiful gloss on the furniture.

If the pinky shade occasioned by the alkanet root and pink is disagreeable, they may be omitted in part or entirely.

776. *To clean Turkey Carpets.*

To revive the colour of a Turkey carpet, beat it well with a stick till the dust is all got out; then, with a lemon or sorrel juice, take out the spots of ink, if the carpet be stained with any; wash it in cold water, and afterwards shake out all the water from the threads of the carpet. When it is thoroughly dry, rub it all over with the crum of a hot wheaten loaf; and, if the weather is very fine, hang it out in the open air a night or two.

777. *To clean Marble.*

Muriatic acid, either diluted or pure, as occasion may require, proves efficacious. If too strong, it will deprive the marble of its polish, which may be easily restored by the use of a piece of felt, with some powder of putty or tripoli, with either making use of water.

778. *Mixture for cleaning Stone Stairs, Hall Pavements, &c.*

Boil together half a pint each of size and stone blue water, with two table-spoonfuls of whitening, and two cakes of pipemaker's clay, in about two quarts of water. Wash the stones over with a flannel slightly wetted in this mixture; and, when dry, rub them with flannel and a brush. Some persons recommend beer, but water is much better for the purpose.

779. *The Danger of Children eating gilt Gingerbread, or any Article covered with such a Composition.*

There are frequently sold eatable things, as images of sugar, &c. having on them what people imagine to be gold leaf, but which is, in reality, leaves of copper, beat out in imitation of it, which is so dangerous a poison as to demand the interference of government, to prevent the sale of such articles; irreparable mischief having been occasioned without suspicion of the cause.

780. *German Furniture Gloss, or Polishing Wax for Mahogany, &c.*

Cut in small pieces a quarter of a pound of yellow wax; and, melting it in a pipkin, add an ounce of well pounded colophony, or black rosin The wax and colophony being both melted, pour in, by degrees, quite warm, two ounces of oil or spirit of turpentine. When the whole is thoroughly mixed, pour it into a tin or earthen pot, and keep it covered for use. The method of applying it to the furniture, which must be first well dusted and cleaned, is by spreading a little of this composition on a piece of woollen cloth, and well rubbing the wood with it; and, in a few days, the gloss will be as firm and fast as varnish.

781. *Method of cleaning and polishing Rusty Steel.*

After well oiling the rusty parts of the steel, let it remain two or three days in that state; then wipe it dry with clean rags, and polish with emery or pumice-stone, on hard wood. Frequently, however, a little unslaked lime, finely powdered, will be sufficient after the oil is cleaned off. Where a very high degree of polish is requisite, it will be most effectually obtained by using a paste composed of finely levigated blood-stone and spirits of wine. Bright bars, however, are admirably cleaned, in a few minutes, by using a small portion of fine corned emery, and afterwards finishing with flour of emery or rotten-stone: all of which may be had at any ironmonger's. This last very simple method, will, perhaps, render any other superfluous.

782. *To preserve Metals from Rust.*

Anoint them with spermaceti oil.

783. For cleaning Steel or Iron-polished Stoves.

Stoves may be admirably cleaned, in a few minutes, by using a small portion of fine corned emery-stone; and afterwards finishing with flour of emery or rotten-stone, either of which may be obtained at any ironmonger's.

784. How to judge the Properties of Nutmegs.

The largest, heaviest, and most unctuous of nutmegs are to be chosen, such as are the shape of an olive, and of the most fragrant smell.

785. Method of making Stilton Cheese.

Take the night's cream, and put it to the morning's new milk, with the rennet; when the curd is come it is not to be broken, as is done with other cheeses, but take it out with a soil dish all together, and place it on a sieve to drain gradually, and, as it drains, keep gradually pressing it till it becomes firm and dry; then place it in a wooden hoop; afterwards to be kept dry on boards, turned frequently, with cloth-binders round it, which are to be tightened as occasion requires.

In some dairies the cheeses, after being taken out of the wooden hoop, are bound tight round with a cloth, which cloth is changed every day until the cheese becomes firm enough to support itself; after the cloth is taken away, they are rubbed every day all over, for two or three months, with a brush; and if the weather is damp or moist, twice a day; and even before the cloth is taken off, the top and bottom are well rubbed every day.

N. B.—The dairy-maid must not be disheartened if she does not succeed perfectly in her first attempt.

786. Colouring for Cheese.

The colouring for cheese is, or at least should be, Spanish annotto: but as soon as colouring became general in this country, a colour of an adulterated kind was exposed for sale in almost every shop; the weight of a guinea and a half of real Spanish annotto is sufficient for a cheese of fifty pounds weight. If a considerable part of the cream of the night's milk be taken for butter, more colouring will be requisite. The leaner the cheese is the more colouring it requires.

The manner of using annotto is to tie up, in a linen rag, the quantity deemed sufficient, and put it into half a pint of warm water over night. This infusion is put into the tub of milk, in the morning, with the rennet infusion; dipping the rag into the milk, and rubbing it against the palm of the hand as long as any colour runs out.

787. *A new Method of rearing Poultry to Advantage; communicated by Mrs. D'Oyley to the Society of Arts, &c.*

"I keep a large stock of poultry, which are regularly fed in a morning upon steamed potatoes chopped small, and at noon they have barley; they are in high condition, tractable, and lay a very great quantity of eggs. In the poultry-yard is a small building, similar to a pigeon cote, for the hens to lay in, with frames covered with net to slide before each nest; the house is dry, light, and well ventilated, kept free from dirt, by having the nests and walls white washed two or three times a year, and the floor covered once a week with fresh ashes: when I wish to procure chickens, I take the opportunity of setting many hens together, confining each to her respective nest; a boy attends morning and evening to let any off that appear restless, and to see that they return to their proper places; when they hatch, the chickens are taken away, and a second lot of eggs allowed them to set again, by which means they produce as numerous a brood as before; I put the chickens into long wicker cages, placed against a hot wall, at the back of the kitchen fire, and with them are artificial mothers for the chickens to run under; they are made of boards about ten inches broad, and fifteen inches long, supported by two feet in the front, four inches in height, and by a board at the back two inches in height. The roof and back are lined with lamb's-skins dressed with the wool upon them. The roof is thickly perforated with holes for the heated air to escape; they are formed without bottoms, and have a flannel curtain in front, and at the ends, for the chickens to run under, which they apparently do by instinct. The cages are kept perfectly dry and clean with sand or moss. The above is a proper size for fifty or sixty new hatched chickens, but as they increase in size, they of course require a larger mother. When they are a week old, and the weather fine, the boy carries them and their artificial mother, to the grass-plot, nourishes and keeps them warm, by placing a long narrow tin vessel, filled with hot-water, at the back of the artificial mother, which will retain its heat for three hours, and is then renewed fresh from the steamer. In the evening they are driven into their cages, and resume their station at the hot wall, till they are nearly three weeks old, and able to go into a small room, appropriated to that purpose. The room is furnished with frames similar to the artificial mothers, placed round the floor, and with perches conveniently arranged for them to roost upon.

"When I first attempted to bring up poultry in the above way, I lost immense numbers by too great heat and suffocation, owing to the roofs of the mothers not being sufficiently ventilated; and when that evil was remedied, I had another serious one to encounter; I found chickens brought up in this way did not thrive upon the food I gave them, and many of them died, till I thought of getting coarse barley-meal, and steaming it till quite soft; the boy feeds them with this and minced potatoes alternately; he is also employed rolling up pellets of dough, made of coarse wheat flour, which he throws to the chickens to excite them to eat, thereby causing them to grow surprisingly. Hens kept as mine are, and having the same conveniences, will readily set four times in a season, and by setting twice each time, they would produce, at the lowest calculation, eighty chickens each, which would soon make them very plentiful."

788. *Rules for plucking Geese.*

Geese destined for breeding in farm-yards, and which are what are called old geese, may indeed be plucked thrice a year without inconvenience, at an interval of seven weeks; but young ones, before they are subjected to this operation, must have attained to the age of thirteen or fourteen weeks, and especially those soon destined for the table, because they would become meagre, and lose their quality.

789. *To improve the Down of Geese.*

The nature of the food contributes very much to the value of the down, and to the strength of feathers the particular care taken of geese has no less influence. It has been remarked, that in places where these birds find a great deal of water, they are not so much subject to vermin, and furnish feathers of a better quality.

790. To ascertain the Properties of Goose Down.

There is a sort of maturity, in regard to down, which may easily be discovered, as it then falls of itself; if removed too soon it will not keep, and is liable to be attacked by worms. Lean geese furnish more than those which are fat, and are also more esteemed. Farmers ought never to suffer feathers to be pulled from geese some time after they are dead, for the purpose of being sold; they generally smell bad, and become matted; none but those plucked from living geese, or which have been just killed, ought to be introduced into commerce. In the latter case the geese must be plucked soon, and in such a manner that the operation may be terminated before they are entirely cold; the feathers are then much better.

791. To prevent Inconvenience from Perspiration of the Hands.

Ladies who work lace or embroidery sometimes suffer inconvenience from the perspiration on their hands; which may be remedied, by rubbing the hands frequently with a little dry wheaten bran.

792. Every Family to make their own Sweet Oil.

It is reported, a person is going to take out a patent for making a small hand-mill, for every family to make their own sweet oil. This may easily be done, by grinding or beating the seeds of white poppies into a paste, then boil it in water, and skim off the oil as it rises; one bushel of seed weighs fifty pounds, and produces two gallons of oil. Of the sweet olive oil sold, one-half is oil of poppies. The poppies will grow in any garden; it is the large-head white poppy, sold by apothecaries. Large fields are sown with poppies in France and Flanders, for the purpose of expressing oil from their seed for food. Vide 10th and 11th vols. of Bath Society Papers, where a premium of twelve guineas is offered for the greatest number of acres sown in 1808 and 1809. When the seeds is taken out, the poppy head when dried is boiled to an extract, which is sold at two shillings per ounce, and it is to be preferred to opium, which now sells very high. Large fortunes may be acquired by the cultivation of poppies. Some acres of it are now sown near Cambridge, and of late years also at Enfield, in Middlesex.

White poppies are, however, a very precarious crop in the climate of Britain; except, perhaps, in Devon, and the more southerly districts.

793. *To take Mildew out of Linen.*

Take soap, and rub it well; then scrape some fine chalk, and rub that also in the linen; lay it on the grass; as it dries wet it a little, and it will come out at twice doing.

794. *To make Vinegar with the Refuse of Bee-hives, after the Honey is extracted.*

When honey is extracted from the combs by means of pressure, take the whole mass, break and separate it, and into each tub or vessel put one part of combs and two of water; place them in the sun, if his rays possess a sufficient power; or in a warm place, and cover them with cloths. Fermentation takes place in a few days, and continues from eight to twelve days, according to the higher or lower temperature of the situation in which the operation is performed. During the fermentation, stir the matter from time to time, and press it down with the hands, that it may be perfectly soaked. When the fermentation is over, put the matter to drain upon sieves or strainers. At the bottom of the vessels will be found a yellow liquor, which must be thrown away, because it would soon contract a disagreeable smell, which it would communicate to the vinegar. Then wash the tubs, put into them the water separated from the other matter; it immediately begins to turn sour; when the tubs must be again covered with cloths, and kept moderately warm. A pellicle or skin is formed on their surface, beneath which the vinegar acquires strength; in a month's time it begins to be sharp; it must be left standing a little longer, and then put into a cask, of which the bung-hole is left open, and it may then be used like any other vinegar.

795. *The best Method of obtaining pure Soft Water for Medicinal Purposes, without distilling it.*

Place an earthen pan in the fields, at a considerable distance from the smoke of any town, to catch the rain as it falls from the clouds. The water should be put into perfectly clean bottles, and the corks well secured with wax, and if the bottles are put into a cool place, the water will keep sweet for several years.

796. Warm Water.

Warm water is preferable to cold water, as a drink, for persons who are subject to dyspeptic and bilious complaints, and it may be taken more freely than cold water, and consequently answers better as a diluent for carrying off bile, and removing obstructions in the urinary secretion in cases of stone and gravel. When water, of a temperature equal to that of the human body, is used for drink, it proves considerably stimulant, and is particularly suited to dyspeptic, bilious, gouty, and chlorotic subjects.

797. Proper Method of making Toast and Water, and the Advantages resulting therefrom.

Take a slice of fine and stale loaf-bread, cut very thin, (as thin as toast is ever cut) and let it be carefully toasted on both sides, until it be *completely browned all over*, but nowise blackened or burned in any way. Put this into a common deep stone or china jug, and pour over it, from the tea-kettle, as much clean boiling water as you wish to make into drink. Much depends on the water being actually in a boiling state. Cover the jug with a saucer or plate, and let the drink cool until it be quite cold; it is then fit to be used: the fresher it is made the better, and of course the more agreeable. The above will be found a pleasant, light, and highly diuretic drink. It is peculiarly grateful to the stomach, and excellent for carrying off the effects of any excess in drinking. It is also a most excellent drink at meals, and may be used in the summer time, if more agreeable to the drinker.

798. To manage Ripe Fruit for a Dessert.

Take some fruit-baskets of open-work, cover them with large leaves, and at seven o'clock in the morning go out and gather the fruit. When you have carefully chosen what is ripe, and laid it handsomely in the basket, let it be placed in a cool, but not damp room, till it is wanted. When the ripest are gathered, the rest are to be preserved; and with respect to birds, some lime twigs and trap cages should be placed, and lines of feathers hung about the place.

799. *Walnut Ketchup.*

Take half a bushel of green walnuts, before the shell is formed, and grind them in a crab mill, or beat them in a marble mortar; then squeeze out the juices through a coarse cloth, and wring the cloth well to get all the juice out, and to every gallon of juice put a quart of red wine, a quarter of a pound of anchovies, the same of bay salt, one ounce of allspice, two of long or black pepper, half an ounce of cloves and mace, a little ginger and horse-radish, cut in slices; boil all together till reduced to half the quantity; pour into a pan; when it is cold bottle it, cork it tight, and it will be fit to use in three months. If you have any pickle left in the jar after your walnuts are used, to every gallon of pickle put in two heads of garlic, a quart of red wine, an ounce each of cloves and mace, long, black, and Jamaica pepper, and boil them all together till it is reduced to half the quantity, pour it into a pan, and the next day bottle it for use, and cork it tight.

800. *To cork and preserve Cider in Bottles.*

Good corks are highly necessary, and if soaked before used in scalding water, they will be the more pliant and serviceable; and by laying the bottles so that the liquor may always keep the cork wet and swelled, will much preserve it.

801. *To make excellent Punch.*

One tea-spoonful of Coxwell's acid salt of lemons, a quarter of a pound of sugar, a quart of water nearly boiling, half a pint of rum, and a quarter of a pint of brandy; a little lemon peel may be added, or in place thereof, a few drops of essence of lemon.

802. *To make a pleasant, sober, and refreshing Drink for the Summer.*

Take one bottle of sherry (but Madeira is preferable), two bottles of cider, one of perry, and one gill of brandy; and after those ingredients are mixed, take two lemons, pare the rind as thin as possible; then slice the lemons, and put the rind and lemons into a cup; to these add a little grated nutmeg and powdered sugar, to make it palatable: stir them together, then toast a biscuit very brown, and throw it hot into the liquor It is generally found a pleasant draught at dinner, and produces no bad effects on those who drink it in moderation.

803. *To make the German Liquor, Mum.*

Mum is made of various sorts of grain, in the following proportions to seven bushels of wheaten malt, add one bushel of oatmeal, one bushel of ground beans, and a variety of other articles, as the tops of fir, wild thyme, &c., also ten new-laid eggs These articles ought to be infused in sixty-three gallons of water boiled down to forty-one.

804. *To extract Syrup from Indian Corn.*

The young spikes, when they are beginning to form, possess a very agreeable saccharine taste. Ten pounds of them squeezed in a stone mortar, and the juice expressed, after the leaves are stripped off, will give about four pounds of a milky juice, which, when clarified, and evaporated to the consistence of a syrup, will be found very agreeable to the palate This vegetable will grow in England from the seed, sown in good soil.

805. *Excellent Bitter for the Stomach.*

One ounce of gentian root sliced, one ounce of fresh rind of lemon, two drachms of cardamom seeds bruised, three drachms of Seville orange peel, pour a pint and a half of boiling water over the ingredients, let it stand an hour, then decant the clear liquor, and take a wine glass full two or three times a day.
It should be kept closely covered after the water is put in the ingredients.

806 *To detect Sugar of Lead in Wines.*

The tincture of orpiment converts wine so adulterated to a black colour

807. *A Test for discovering in Wine, Metals that are injurious to the Health.*

The property of liver of sulphur, and of hepatic gas, in precipitating lead of a black colour, has been long known and that property has been made use of to ascertain the goodness of wine, in the preparation of the *liquor probatorius Wurtembergiensis.*

But in trying wines which we suspect to be adulterated, that proof does more harm than good; because it precipitates the iron of the same colour with the pernicious lead; by which means, some dealers of respectable characters have been ruined.

It was wanting, therefore, to find an agent which would discover nothing in wine but what was prejudicial to health. This is accomplished by the following test, which precipitates lead and copper of a black colour, arsenic of an orange colour, &c. but does not iron, which being innocent, or rather salutary, to the human constitution, gets into a great number of different sorts of wine by various accidents.

Receipt for the Test Liquor.—Mix equal parts of oyster shells, and crude sulphur reduced to a fine powder, and put the mixture in a crucible. Heat this in a wind furnace, and suddenly raise the heat till the crucible is exposed to a white heat for fifteen minutes. When the mass is cool, reduce it to a powder, and keep it in a bottle well corked.

To make the liquor, put 120 grains of this powder and 180 grains of cream of tartar into a strong bottle full of common water, which has been boiled for an hour, and suffered to cool. Cork the bottle immediately, and shake it from time to time. After having stood a few hours, pour off what is clear of the liquor into ounce phials, after having previously put into each of them twenty drops of spirit of sea salt; and then stop them well with wax mixed with a little turpentine.

One part of this liquor, mixed with three parts of wine adulterated, will discover, by a very sensible black precipitate, the smallest quantity of lead, copper, &c. but will have no effect on any iron it may contain. When the precipitation is made, iron may be discovered by saturating the wine remaining, when poured off, with a little salt of tartar, when the liquor becomes instantly black.

Pure wines remain perfectly clear after the addition of this liquor.

808. *Substitute for Human Milk, where, from any Circumstance, it cannot be procured for Children.*

In a quart of water boil two ounces of hartshorn shavings over a gentle fire, till the whole is reduced to a pint; mix this with twice its quantity of cow's milk, and the addition of a little sugar. This forms for children a proper aliment, approaching nearly to the nature of human milk.

809. *To make old Man's Milk: a nutritious and pleasant Beverage.*

Beat up the yolk of an egg in a bowl or basin, and then mix with it some cream or milk, and a little sugar, according to the quantity wanted, and let them be thoroughly incorporated. A glass of spirits, or more, is to be then poured gradually into the mixture, so as to prevent the milk or cream from curdling. This mixture will be found useful to travellers who are obliged to commence their journey early, particularly if the weather be cold and damp.

810. *To prevent disagreeable Smells from Privies, Night Chairs, &c.*

Milk of lime (water in which lime has been slaked, and which is whitened by the fine particles of that substance) must be mixed with a ley of ashes, or soapy water that has been used in washing, then thrown into the sink of the privy, it will destroy the offensive smell. By these means, for the value of a few pence, any collection of filth whatever may be neutralised.

For the night-chair of sick persons, put within the vessel half a pound of quicklime, half an ounce of powdered salammoniac, and water one pint: this will prevent any disagreeable odour.

Remarks.—Quicklime, or even lime just slaked, answers the purpose without any addition. It is the only thing used in camps, particularly in hot countries, to keep the ditches from creating contagion.

811. *Economy in Fuel.*

A saving of nearly one-third of the coal consumed in London may be made by the following easy means:—let the coal ashes, which are usually thrown into the dust bin, be preserved in a corner of the coal hole, and make your servants add to them from your coal heap, an equal part of the small coal or slack, which is too small to be retained in the grate, and pour a small quantity of water upon the mixture. When you make up your fire, place a few round coals in front, and throw some of this mixture behind, it saves the trouble of sifting your ashes, gives a warm and pleasant fire, and a very small part only will remain unburnt.

812 *Another Method.*

In managing your fires during the day, first lay on a shovel-full of the dust and ashes from under the grate, then a few coals, then more ashes, and afterwards a few more coals, and thus proceed till your grate is properly filled, placing a few round coals in front. You will find that the ashes retain the heat better than coals alone, you will have less smoke, a pleasant fire, and a very little waste left at night.

813 *Economy in Tinder.*

The very high price of paper, at present, renders the saving of even the smallest quantity of linen or cotton rags of consequence, as they sell very dear; trifling as it may be thought, yet it will be found that a considerable quantity of rags may be saved in a family, by using as tinder for lighting matches the contents of the common snuffers collected in the course of the evening.

814 *Valuable Properties of Cherry-tree Gum.*

The gum that exudes from the trunk and branches of the cherry-tree, is equal to gum-arabic. Hasselquist relates that, during a siege, more than an hundred men were kept alive for two months nearly, without any other sustenance than a little of this gum taken into the mouth sometimes, and suffered gradually to dissolve.

815 *To make a wholesome Food of Cashew Nuts.*

Cashew nuts may be prepared as food, by blanching them with hot water to wash off the caustic oil, or roasting them in a pot like coffee, but care must be taken to avoid the smoke, which is very acrid. They may also be prepared by sticking them on a fork, and burning them at a candle. The oil of the shell is abundant, and thoroughly roasts the kernel within. The kernel of the fresh cashew nut is made into an emulsion, like almonds, and universally used in the West Indies.

816. Economy in Candles.

In such candlesticks as are not made to slide, the candles are frequently permitted to burn in the socket to great waste, and to the injury of the candlestick; this may be prevented by taking out early the short piece of candle, placing it betwixt three common pins stuck in an old cork, and putting the cork in the candlestick.

Or rather give a penny for that ingenious utensil, a save-all. It is at least as cheap, and prevents the risk of setting fire to the house.

817. Curious small Cakes of Incense for perfuming Apartments.

Take equal quantities of lignum rhodium, and anise, in powder, with a little powder of dried Seville orange peel, and the same of gum benzoin, or benjamin, and beat all together in a marble mortar. Then, adding some gum dragon, or tragacanth, dissolved in rose-water, put in a little civet; beat the whole again together, make up this mixture into small cakes, and place them on paper to dry. One of these cakes being burnt in the largest apartment, will diffuse a most agreeable odour through the whole room.

818. Polished Tea Urns preferable to varnished ones.

Polished tea urns may be kept boiling with a much less expense of spirits of wine, than such as are varnished; and the cleaner and brighter the dishes, and covers for dishes, which are used for bringing victuals to table, and for keeping it hot, the more effectually will they answer that purpose.

819. Management of Razor Straps.

Most razor straps are spoiled by being left too dry; a drop or two of sweet oil, frequently added to the strap, would remedy this; and, after using the strap, passing the razor on the inside of a warm hand, gives the smoothest and finest edge; putting the razor in warm water makes it cut very keen, and perhaps nothing makes a better razor strap than crocus martis, with a little sweet oil, rubbed well on leather with a glass bottle.

820. *To prevent Accidents from leaving a Poker in the Fire.*

The following invention is equally simple and secure. Immediately above that square part of the poker, by blacksmiths called the bit, let a small cross of iron, about an inch and a half each way, be welded in.

The good consequences of this simple contrivance will be —1st, If the poker, by the fire giving way, should slip out, it will probably catch on the edge of the fender.

2d, If it should not, it cannot injure the hearth or carpet, as the hot part of the poker will be borne up some inches.

And 3d, The poker cannot be run into the fire further than the bit, which, in regard to a polished poker, is also of some consequence.

821. *Substitute for Milk or Cream.*

Where cream or milk cannot be got, it is an excellent substitute to beat up the whole of a fresh egg, in a basin, and then gradually to pour boiling tea over it, to prevent its curdling. It is difficult, from the taste, to distinguish the composition from tea and rich cream. This might be of great use at sea, as eggs may be preserved fresh in various ways.

822. *Useful Properties of Celandine.*

The juice of this plant cures tetters and ring-worms, destroys warts, and cures the itch.

823. *Application of the Roots of Fir-Trees or Pines.*

The roots or but-ends of fir-trees will yield a considerable quantity of pitch and tar, by the following management:— Make a hole in the earth, a few inches deep, on the side of a hill, in which lay a coat of clay, and therein pile the fir-roots, split and cut to the length of not more than three feet, upon bars of iron laid above the hole, and the logs piled up at the distance of half an inch from each other, and each row laid crossway of the other, to any height required; fire is to be set to the top of the pile, and as it consumes the wood, the pitch, tar, and rosin, contained in the wood, melt and run from it into the hole below, and from thence by a small trench into a large hole, made several feet deep in the ground, to receive these products.

824. *To prevent Beer from growing flat.*

In a cask, containing eighteen gallons of beer, becoming vapid, put a pint of ground malt, suspended in a bag, and close the bung perfectly: the beer will be improved during the whole time of drawing it for use.

825. *To recover sour Beer.*

When beer is become sour, add thereto some oyster shells calcined to whiteness, or, in place thereof, a little fine chalk or whiting. Any of these will correct the acidity, and make it brisk and sparkling; but it should not be long kept after such additions, otherwise it will spoil.

826. *To restore pricked or stale Beer.*

To about a quart of stale beer, put half a tea-spoonful of salt of wormwood; this will restore the beer, and make it sparkle when poured into a glass, like bottled porter.

827. *Receipt for Blacking.*

In three pints of small beer, put two ounces of ivory black, and one pennyworth of brown sugar. As soon as they boil, put a dessert-spoonful of sweet oil, and then boil slowly till reduced to a quart. Stir it up with a stick every time it is used; and put it on the shoe with a brush when wanted.

828. *Another.*

Two ounces of ivory black; one tea-spoonful of oil of vitriol, one table-spoonful of sweet oil; and two ounces of brown sugar; roll the same into a ball, and to dissolve it add half a pint of vinegar.

829. *Another.*

Take ivory black and brown sugar-candy, of each two ounces; of sweet oil a table-spoonful; add gradually thereto a pint of vinegar, cold, and stir the whole till gradually incorporated.

830. *Another.*

To one pint of vinegar add half an ounce of vitriolic acid, half an ounce of copperas, two ounces of sugar-candy, and two ounces and a half of ivory black; mix the whole well together.

831. *Another.*

Sweet oil, half an ounce; ivory black and treacle, of each half a pound; gum-arabic, half an ounce; vinegar, three pints; boil the vinegar, and pour it hot on the other ingredients.

832. *Another.*

Three ounces of ivory black, one ounce of sugar-candy, one ounce of oil of vitriol, one ounce of spirits of salts, one lemon, one table-spoonful of sweet oil, and one pint of vinegar.—First mix the ivory black and sweet oil together, then the lemon and sugar-candy, with a little vinegar to qualify the blacking, then add your spirits of salts and vitriol, and mix them all well together.

N. B.—The last ingredients prevent the vitriol and salts from injuring the leather, and add to the lustre of the blacking.

833. *Another.*

Ivory black, two ounces; brown sugar, one ounce and a half; sweet oil, half a table-spoonful. Mix them well, and then gradually add half a pint of small beer.—*Proved.*

834. *Another.*

A quarter of a pound of ivory black, a quarter of a pound of moist sugar, a table-spoonful of flour, a piece of tallow about the size of a walnut, and a small piece of gum-arabic. —Make a paste of the flour, and while hot put in the tallow, then the sugar, and afterwards mix the whole well together in a quart of water, and you will have a beautiful shining blacking.

835. *Easy Method of cleaning Boots and Shoes in the Winter-time, so as to prevent soiling the Person, the Clothes, or the House.*

When the boots or shoes are covered with dirt, take them off, and with the back of a case-knife, or a piece of wood cut thin at the edges like a stationer's paper-knife, scrape the dirt off with the same as clean as possible, which will be very easily done whilst the boots and shoes are wet. Then, with a small piece of wet sponge or flannel, wipe off the remaining dirt which the pressure of the knife cannot effect.

Then place them in a dry room, or at a convenient distance from the fire, for a few hours, and they will take the blacking remarkably well, and bear as fine a polish as they did before wetting. If proper attention is paid to this process, the fingers will scarcely be soiled, and much trouble will be saved by the extra brushing required when the dirt is suffered to dry on.

836 *Genuine Preparation of the Famous Chemical Liquid for Boot Tops, &c.*

Many of the liquids, sold under various denominations, for the purpose of cleaning and restoring the colour of boot tops, &c. are found very imperfectly to answer that purpose, and often to injure the leather. The following genuine receipt may be fully relied on, for actually producing this desirable effect; as well as for readily taking out grease, ink spots, and the stains occasioned by the juice of fruit, red port wine, &c from all leather or parchment.—Mix in a phial, one drachm of oxymuriate of potash with two ounces of distilled water; and, when the salt is dissolved, add two ounces of muriatic acid. Then, shaking well together, in another phial, three ounces of rectified spirit of wine with half an ounce of the essential oil of lemon, unite the contents of the two phials, and keep the chemical liquid thus prepared closely corked for use. The chemical liquid should be applied with a clean sponge, and dried in a gentle heat; after which, the boot tops may be polished with a proper brush, so as to appear like new leather.

837. *To prevent Snow Water or Rain from penetrating the Soles of Shoes or Boots in Winter.*

This simple and effectual remedy is nothing more than a little bees'-wax and mutton suet, warmed in a pipkin, until in a liquid state; then rub some of it slightly over the edges of the sole where the stitches are, which will repel the wet, and not in the least prevent the blacking from having the usual effect.

838. *Vulgar Error respecting the putting of Spirits into Boots and Shoes to prevent the Effects of Cold.*

The custom of pouring brandy into the boots or shoes, when the feet have got wet, with a view to prevent the effects of cold, is a practice which (though very common) is founded in prejudice and misconception, and often proves fatal, by bringing on inflammation and consequent obstruction in the bowels. This practice is adopted upon the supposition that, because spirits, when swallowed, excite an universal warmth and restore the circulation in the extremities, they must do the same when applied to the extremities themselves. But the reverse happens. Fluids, when evaporating, produce cold; and the lighter or more spirituous the fluid, the more quickly it evaporates, and the greater is the degree of cold generated. This may be proved by a very simple experiment. If one hand be wetted with spirit and the other with water, and both are held up to dry in the air, the hand wetted with spirit will feel infinitely colde than the other; or if the bulbs of two thermometers be so treated, the mercury will be observed to fall much more rapidly in the one case than in the other. Whatever danger, therefore, arises from cold or damp feet, it is generally enhanced by the practice alluded to. If such a remedy is to be at all employed, it ought, undoubtedly, to be taken into the stomach.

839. *A black Varnish for Gentlemen's old Straw or Chip Hats.*

Take best black sealing-wax, half an ounce; rectified spirit of wine, two ounces; powder the sealing-wax, and put it, with the spirit of wine, into a four ounce phial; digest them in a sand heat, or near a fire, till the wax is dissolved; lay it on warm with a fine soft hair-brush, before a fire, or in the sun. It gives a good stiffness to old straw hats, and a beautiful gloss equal to new, and resists wet. If the hats are very brown, they may be brushed over with writing-ink, and dried before the varnish is applied. Spirit of turpentine may probably be used in the place of the spirit of wine.

840. *To prevent Gentlemen's Hats from being spotted after a Shower of Rain.*

If your hat is wet from rain, or any other cause, shake it out as much as possible; then with a clean linen cloth or handkerchief wipe the hat very carefully as well as you can, observing, that in so doing you keep the beaver flat and smooth, in the same direction as it was first placed, then with your hands fix it in the original shape, and hang it at a distance from the fire to dry. A few hours after, or the next morning, lay the hat on the table, and brush it round and round several times with a soft brush in the proper direction, and you will find your hat not in the least injured by the rain.

If the gloss is not quite so high as you wish, take a flat iron, moderately heated, and pass the same two or three times gently over the hat; brush it afterwards; and it will be nearly as handsome as when first sent home from the shop.

841. *Easy Method of preventing Moths in Furs or Woollens.*

Sprinkle the furs or woollen stuffs, as well as the drawers or boxes in which they are kept, with spirits of turpentine, the unpleasant scent of which will speedily evaporate, on exposure of the stuffs to the air. Some persons place sheets of paper moistened with spirits of turpentine, over, under, or between pieces of cloth, &c. and find it a very effectual method.

842. *To preserve Furs, Woollens, &c.*

Many woollen-drapers put bits of camphor, the size of a nutmet, in papers on different parts of the shelves in their shop; and as they brush their cloths every two, three, or four months, this keeps them free from moths; and this should be done in boxes where furs, &c. are put. A tallow candle is frequently put within each muff when laid by.

843. *To keep Moths, Beetles, &c. from Clothes.*

Put a piece of camphor in a linen bag, or some aromatic herbs, in the drawers, among linen or woollen clothes, and neither moth nor worm will come near them.

844. *To purify Wool infested with Insects.*

The process of purification consists in putting into three pints of boiling water a pound and a half of alum, and as much cream of tartar, which are diluted in twenty-three pints more of cold water. The wool is then left immersed in this liquor during some days, after which it is washed and dried. After this operation it will no longer be subject to be attacked by insects.

845. *Chinese Method of rendering Cloth Water-proof.*

To one ounce of white wax, melted, add one quart of spirits of turpentine, which, when thoroughly mixed and cold, dip the cloth in and hang it up to dry. By this cheap and easy method, muslin, as well as the strongest cloths, will be rendered impenetrable to the hardest rains, without the pores being filled up, or any injury done, when the cloth is coloured.

846. *To perfume Linen.*

Rose leaves dried in the shade, cloves beat to a powder and mace scraped; mix them together, and put the composition into little bags.

847. *To raise the Surface or Pile of Velvet when pressed down.*

Warm a smoothing-iron moderately, and cover it with a wet cloth, and hold it under the velvet; the vapour arising from the heated cloth will raise the pile of the velvet, with the assistance of a rush whisk.

848. *To prevent Danger from Wet Clothes.*

Keep if possible in motion, and take care not to go near a fire or into any very warm place, so as to occasion a sudden heat, till some time after you have been able to procure dry clothes.

489. *Useful Hints relative to Bedclothes, Mattresses, Cushions, &c.*

The purity of feathers and wool employed for mattresses and cushions ought to be considered as a first object of salubrity. Animal emanations may, under many circumstances, be prejudicial to the health; but the danger is still greater, when the wool is impregnated with sweat, and the excrementitious parts of persons who have experienced putrid and contagious diseases. Bedclothes, and the wool of mattresses, therefore, cannot be too often beat, carded, cleaned, and washed. This is a caution which cannot be too often recommended.

It would be very easy in most situations, and very effectual, to fumigate them with muriatic gas.

850. To clean Silk Stockings.

Wash your stockings first in white soap liquor, lukewarm, to take out the rough dirt; then rinse them in fair water, and work them well in a fresh soap liquor. Then make a third soap liquor, pretty strong, in which put a little stone blue, wrapped in a flannel bag, till your liquor is blue enough; then wash your stockings well therein, and take them out and wring them. Then let them be dried so that they may remain a little moist; then stove them with brimstone, after which, put upon the wood leg two stockings, one upon the other, observing that the two fronts, or outsides, are face to face, then polish them with a glass.

N. B.—The two first soap liquors must be only lukewarm, the third soap liquor as hot as you can bear your hand in it.

Blonds and gauzes are whitened in the same manner, only a little gum is put in the soap liquor before they are stoved.

851. Preservative from Moths in Clothes or Books.

Get some narrow slips of the best Russia leather, and lay the same indiscriminately among the clothes, books, &c. The leather may be procured at any bookbinder's in town, and a pound, which will last a long time, costs about a shilling. This will have the desired effect, it having been frequently used with great success.

852. Composition for restoring Scorched Linen.

Boil, to a good consistency, in half a pint of vinegar, two ounces of fuller's earth, an ounce of hen's dung, half an ounce of cake soap, and the juice of two onions. Spread this composition over the whole of the damaged part; and, if the scorching were not quite through, and the threads actually consumed, after suffering it to dry on, and letting it receive a subsequent good washing or two, the place will appear full as white and perfect as any other part of the linen.

853. To try the Purity of Spirits.

See if the liquor will burn away without leaving any moisture behind. As spirit is much lighter than water, place a hollow ivory ball in it; the deeper the ball sinks the lighter the liquor, and consequently more spirituous.

854. *To make Koumiss, a valuable Wine of the Tartars.*

Take of fresh mare's milk, of one day, any quantity; add to it a sixth part water, and pour the mixture into a wooden vessel; use then, as a ferment, an eighth part of the sourest cow's milk that can be got; but at any future preparation, a small portion of old koumiss will better answer the purpose of souring. Cover the vessel with a thick cloth, and set it in a place of moderate warmth; leave it at rest twenty-four hours; at the end of which time the milk will have become sour, and a thick substance will be gathered on its top; then, with a stick, made at the lower end in the manner of a churn staff, beat it till the thick substance above-mentioned be blended intimately with the subjacent fluid. In this situation leave it again at rest for twenty-four hours more; after which, pour it into a higher and narrower vessel, resembling a churn, where the agitation must be repeated as before, till the liquor appear to be perfectly homogeneous; and in this state it is called koumiss; of which the taste ought to be a pleasant mixture of sweet and sour. Agitation must be employed every time before it is used. This wine operates as a cooling antiseptic, an useful stimulant, cordial, and tonic, and may prove a valuable article of nourishment; and it has one excellence, perhaps not the least, that the materials from which it is prepared are cheap, and the mode of preparation simple.

855. *Excellent American Wine.*

(Originally communicated to the public by Joseph Cooper, Esq. of New Jersey, North America.)

" I put a quantity of the comb, from which the honey had been drained, into a tub, and added a barrel of cider, immediately from the press; this mixture was well stirred, and left for one night. It was then strained before a fermentation took place; and honey was added, until the strength of the liquor was sufficient to bear an egg. It was then put into a barrel; and after the fermentation commenced, the cask was filled every day, for three or four days, that the filth might work out of the bung-hole. When the fermentation moderated, I put the bung in loosely, lest stopping it tight might cause the cask to burst. At the end of five or six weeks, the liquor was drawn off into a tub; and the whites of eight eggs, well beat up, with a pint of clean sand, were put into it: I then added a gallon of cider spirit; and after mixing the whole well together, I returned it into the cask, which was well cleaned, bunged it tight, and placed it in a proper situation for racking off, when fine. In the month of April following, I drew it off into kegs, for use; and found it equal, in my opinion, to almost any foreign wine: in the opinion of many judges, it was superior.

"This success has induced me to repeat the experiment for three years, and I am persuaded, that, by using clean honey, instead of the comb, as above described, such an improvement might be made, as would enable the citizens of the United States to supply themselves with a truly federal and wholesome wine, which would not cost a quarter of a dollar per gallon, were all the ingredients procured at the market price; and would have this peculiar advantage over every other wine, hitherto attempted in this country, that it contains no foreign mixture, but is made from ingredients produced on our own farms."—(*Dr. Mease's edit. of Dr. Willich's Domestic Encyclopædia, vol. 5.*)

856. *To detect Copper in Liquids.*

Spirit of hartshorn mixed with them, turns them blue. Therefore tea is not dried on copper, as an infusion of it is not turned blue by this mixture.—Cider being passed through brass pots is detected by this experiment.—*Dr Moyes's Lectures.*

857. *To detect the Mixture of Arsenic.*

A solution of blue vitriol dropped into any liquid in which arsenic has been put will turn it green.

858. *To keep off Flies.*

Place camphor on or near what you wish to protect from them.

859. *To make Ink.*

To three quarts of water add three pints of white wine vinegar; fifteen ounces of blue galls slightly bruised; let these stand near a fire six days; then put in six ounces of green copperas, and seven ounces of gum-arabic finely pounded; permit the whole to remain near a fire six days more, and be frequently stirred up; strain the liquor through a fine cloth, and bottle it up for use.

Remark.—The vinegar improves the colour of the ink, but it has the troublesome effect of destroying the pen very quickly. Pronet says, the best ink is made by digesting the infusion of galls in pure water, upon iron. That process certainly makes a very good ink. The proper proportion of gum is of course added.

860. *To stop the Rapidity of Flames when the Female Dress happens accidentally to take Fire.*

If a woollen cloth was constantly kept in nurseries and sitting-rooms, especially when there are fires, laid loose upon the table, or other piece of furniture, this being always at hand, might be easily resorted to in case of accident, and being wrapt tight round the flames, or strongly pressed against them, would, by excluding the air, in many instances, soon extinguish the fire. A green baize cloth being very pliable, and likewise a neat cover to furniture, is recommended for this purpose; and if such were known in the family by the name of the *Stifling Cloth*, it probably would as readily be used when there was occasion for it, as fire-engines and buckets are now. Care must be taken to procure baize of a close texture. Where the convenience of baize cloth cannot be easily procured, as in cottages, &c. a cloth cloak, riding-coat, or blanket, will answer much the same purpose. A man's coat will always be useful; and the first man that arrives ought to apply it.

861. *To prevent Clothes from catching Fire.*

One of the most evident methods to prevent clothes from catching fire, is, to have wire fenders placed before the fire-place, of a sufficient height to hinder the coals from flying into the room; such fenders are so placed in some parlours, but more, it is believed, for protecting the marble hearth and carpet, than for the safety of the females and children of the family. Wire screens are sometimes placed in rooms where birds are let loose, parallel to the fire-place; such as these, if more projecting ones should be objected to, might be used in common sitting-rooms. One or two strong metal bars would be some protection, if close wire-work should not be liked; these, of course, should come some way forward, otherwise they would not be of much use. Certainly the safest are fenders of close wire-work, projecting into the room, sufficiently open to let the heat through, but not any coals which might fly from the fire. Nurseries, in particular, should have this sort.

862. *Hint respecting Women's and Children's Clothes catching Fire.*

The females and children in every family should be particularly told and shown, that flame always tends upwards, and, consequently, that as long as they continue erect, or in an upright posture, while their clothes are burning, the fire generally beginning at the lower part of the dress, the flames meeting additional fuel, as they rise, become more powerful in proportion; whereby the neck and head, being more exposed than other parts to the intense and concentrated heat, must necessarily be most injured. In a case of this kind, where the sufferer happens to be alone, and cannot extinguish the flames by *instantly throwing the clothes over the head, and rolling or lying upon them,* she may still avoid great agony, and save her life, *by throwing herself at full length on the floor, and rolling herself thereon.* This method may not extinguish the flame, but to a certainty will retard its progress, prevent fatal injury to the neck and head, and afford opportunity for assistance; and it may be more practicable than the other, to the aged and infirm. A carpet or hearth-rug instantly lapped round the head and body is almost a certain preventive of danger.

863. *Method to escape from Fire.*

The following simple machine ought always to be kept in an upper apartment. It is nothing more than a shilling or eighteen-penny rope, one end of which should always be made fast to something in the chamber, and at the other end should be a noose to let down children or infirm persons, in case of fire. Along the rope there should be several knots, to serve as resting places for the hands and feet of the person who drops down by it. No family occupying high houses should ever be without a contrivance of this kind.

864. *Easy Method of obtaining Water in almost any Situation.*

The ground must be perforated by a borer. In the perforation is placed a wooden pipe, which is driven down with a mallet, after which the boring is continued, that the pipe may be driven still farther. In proportion as the cavity of the borer becomes loaded, it is drawn up and emptied; and in time, by the addition of new portions of wooden pipe, the boring is carried to any depth, and water is generally obtained.

865. *Method of draining Ponds in level Grounds.*

At a certain distance below the surface of the earth, there sometimes is a stratum of loose sand, which freely admits the passage of water. This stratum is at various depths, in different elevations; but it will be generally found, that lands most subject to stagnant ponds have but a shallow stratum of clay over the sand. All that is necessary, therefore, is to dig a pit in the bottom of the pond, till you arrive at this stratum of sand, when the water will be immediately absorbed, and the pond emptied.

866. *To make Artificial Sea Water.*

Take common sea salt, two pounds; bitter purging salt, two ounces; magnesia earth, half an ounce; dissolve all in river water, six gallons. These are the exact proportions and contents of sea water, from an accurate analyzation.

867. *Another Method of making Sea Water.*

Take common salt, half an ounce; rain, or river water, pure, a pint; spirit of sea salt, twenty drops. Mix it.

868. *To blue Mourning Buckles, Swords, &c.*

Take a piece of grindstone and whetstone, and rub hard on the work, to take off the black scurf from it; then heat it in the fire, and as it grows hot the colour changes by degrees, coming first to a light, then to a dark gold colour, and lastly to a blue. Indigo and salad oil, ground together, is also used, by rubbing the mixture on the work, with a woollen cloth, while it is heating, leaving it to cool of itself.

869. Art of gilding Iron or Steel

Dissolve, in aqua regia, with the assistance of a little heat, as much gold as will fully saturate it; then, adding cream of tartar, form it into a paste. Any bright piece of steel or iron, such as the blade of a knife or razor, &c. being first wetted with water or saliva, and then rubbed with this paste, will be instantly gilded in a beautiful manner: after which, it is to be washed with cold water. If a thicker coat of gold be desired, gold leaf may be laid on, and burnished hard, when it will adhere to the first gilding; and. if the nature of the thing gilded will admit of heat, by warming it, but not so as to become red hot, and then burnishing it, any thickness of gilding may be easily added.

870. Method of Dry Gilding.

Dry gilding, as it is called by some workmen, is a light method of gilding, by steeping linen rags in a solution of gold, then burning them; and with a piece of cloth dipped in salt water, rubbing the ashes over silver intended to be gilt. This method requires neither much labour, nor much gold, and may be employed with advantage for carved work and ornaments. It is not, however, durable.

871. Composition for gilding Brass or Silver.

Take two ounces of gum-lac, two ounces of karabe, or yellow amber, forty grains of dragon's blood in tears, half a drachm of saffron, and forty ounces of good spirits of wine: infuse and digest the whole in the usual manner, and afterwards strain it through a linen cloth; when the varnish is used, the piece of silver or brass must be heated before it is applied: by this means it will assume a gold colour, which is cleaned, when soiled, with a little warm water.

872. To make Shell Gold.

Take the paring of leaf gold, or even the leaves themselves, and reduce them into an impalpable powder, by grinding them on a marble with honey; put this into shells where it will stick and dry; when you want to use it, dilute it with gum water.

N. B. Shell silver is made the same way.

873. *To clean Gold and restore its Lustre.*

Dissolve a little sal-ammoniac in urine; boil your soiled gold therein, and it will become clean and brilliant.

874. *To restore the Lustre of Gold or Silver Lace when tarnished.*

When gold or silver lace happens to be tarnished, the best liquor that can be used for restoring its lustre is spirits of wine; it should be warmed before it is applied to the tarnished spot. This application will preserve the colour of the silk or embroidery.

875. *To clean Gilt Buckles or Toys.*

Rub a little soap on a soft brush, dip the same in water, and gently brush the article you intend cleaning for a minute or two, then wash the same clean off, wipe it, and place it near the fire till it is perfectly dry, then burn a piece of bread, pound it to a fine powder, and brush your articles with it as you do silver goods with whitening.

876. *To silver Glass Globes.*

Take two ounces of quicksilver, one ounce of bismuth, of tin and lead half an ounce of each: first put the tin and lead in fusion, then put in the bismuth, and when you perceive all in fusion, let it stand till almost cold, and then pour in the quicksilver.

After this take the glass globe, which must be very clean, and the inside free from dust, make a paper funnel, which put in the hole of the globe, as near the glass as you can, so that the amalgam, when you pour it in, may not splash and spot the glass: pour it in softly, and move it about that the amalgam may touch every where; if you find it begin to be curdly, hold it over a gentle heat, and it will flow again: the cleaner and finer your globe is, the looking-glass will be the better.

877. *To cut Glass.*

Take a red-hot shank of a tobacco-pipe, lay it on the edge of your glass, which will then begin to crack, then draw the shank end a little gently before, and it will follow any way you draw your hand.

878. *To braze or solder Pieces of Iron.*

This is done by means of thin plates of brass, melted between the pieces that are to be joined. If the work be very fine, as when two leaves of a broken saw are to be brazed together, cover it with pulverized borax, melted with water, that it may incorporate with the brass powder which is added to it: the piece must be then exposed to the fire without touching the coals, and heated till the brass is seen to run.

879. *Useful Hints to Lamplighters.*

As many accidents happen in the winter time by the sliding of ladders, the same would never occur, if the following simple method was generally adopted. "If a strong nail was put in the top of the ladder, in an horizontal position, accidents could never happen, as, when the ladder slides, the nail would catch the lamp iron."

880. *Simple Way of determining the exact Time of Noon, and to obtain a Meridian Line, on a small Scale.*

Near the top of a room, facing the south, fix a plate of metal, with a circular hole in it, for the sun to shine through, from eight or nine o'clock in the morning until three or four in the afternoon; then, by means of a line and a plummet, determine the point upon the floor, which is directly under the centre of the hole, and from that point, as a centre, draw several concentric semicircles. Having made choice of some clear day near the summer solstice, make the room nearly dark, and about three or four hours before, and after noon, mark the points where the northern, as also the southern limb of the sun's image cross those semicircles, and there will be several curves included between these points, through the middle of which a right line being drawn from the centre of the semicircles, is a meridian line. After the line has been drawn in this manner, it must be examined by succeeding observations, and corrected, if necessary, by which means a line may be drawn exceedingly near the true meridian.

Practical Observations on the above.

1. The metal plate, which may be about one-fifth of an inch thick, must be placed parallel to the axis of the world,

that the sun's rays may pass perpendicularly through it when he is in the equator.

2. The aperture need not be more than one-fifth of an inch in diameter, if it be counter-sunk on both sides, to admit the sun's rays to flow through it at the distance of three or four hours before, and after noon.

3. If the surface of the floor, on which the observations are to be taken for finding the meridian, be not sufficiently even, the floor may be covered with new boards, taking the greatest care that they are laid down perfectly horizontal from east to west. After the line has been correctly drawn, and the north and south ends of it marked upon the walls of the room, the boards may be taken away, and others laid down to draw the lines upon.

A meridian line upon a small scale, but sufficiently correct for regulating clocks and watches, may be had by the following method:

Let a stone, with an even surface, about three feet long and two broad, be fixed horizontally upon a brick or stone pillar, at a convenient height for observation, with one of its ends facing the south. Near the middle of this end of the stone fix a gnomon in a direction perpendicular to the horizon. This gnomon, which should be made of a strong bar of metal, must have a small aperture through it, for the sun's ray to flow through early in the morning and late in the evening. From that point, as a centre, which is directly under this aperture, draw several concentric semicircles, and fix the meridian line according to the preceding directions. The gnomon should have several other holes made through it in a line perpendicular to the horizon, that the sun's rays, at noon, flowing through some of them, may fall near the north end of the stone at all seasons of the year; for, if only one hole be used, the sun's image will fall near the centre of the gnomon in the summer, and in the winter it will be thrown far beyond the north end of the stone.

881. *To repair Roads near to Coal Mines.*

The roads to and from coal mines are usually in bad condition from the heavy loads passing in carts over them. The late Duke of Bridgewater, to repair them, adopted, with great success, the following plan, at Worsley, in Lancashire. The stones, clay, and rubbish, first raised from the shaft, were laid in a large heap above ground; then, such inferior coal, pyrites, or shale, as was unfit for sale, and usually thrown away, was laid in another near it; a third heap was raised from a mixture made by laying repeated layers from the above two heaps, stratum super stratum, and this heap, set on fire in such a direction that the wind would assist the fire to penetrate it throughout. The mass, when burnt, formed a compound of half vitrified substances, and abundantly supplied good materials for his drag-paths along the canal, and enabled him to sell the surplus advantageously for the repair of the turnpike roads in that neighbourhood.

882. *Method of bleaching Straw.*

Dip the straw in a solution of oxygenated muriatic acid, saturated with potash. (Oxygenated muriate of lime is much cheaper.) The straw is thus rendered very white, and its flexibility is increased.

883. *For taking Grease out of the Leaves of Books.*

Fold up, in two small bags made of fine open muslin some ashes of burnt bones, finely powdered, or of calcined hartshorn, which is always ready prepared at the shops of the druggists; lay the bags of muslin, containing the powder, one on each side of the greasy leaf: and having heated a pair of fire tongs, or hair-dresser's pinching tongs, of a moderate warmth, press with them the two bags, against the greasy spot, and hold them some time in that situation Repeat the process, if necessary.

When the irons cannot be conveniently used, the powder may be heated over the fire, in a clean earthen vessel; and, whilst hot, applied, without any muslins, on each side of the grease spot, and a weight laid on it to assist its effect.

884 *Method of cleaning dirty Prints or Books.*

If the print should be pasted upon canvas, put it into a copper or kettle of water just boiling; and in three or four minutes it will easily separate from the canvas; next expose it to the sun, by placing it on a grass-plat, and, to prevent the wind from having any effect upon it, so as to tear it, or blow it away, fix four skewers into the ground near the corners, and tie a string to each of the skewers, crossed from corner to corner, so as to confine it completely; when it becomes dry, wet it again thoroughly; and so on for several days, if necessary, in the same manner as you bleach linen; in which operation, as well as in bleaching *prints*, a hot sun is best. If the foulness of the *print* should settle in spots, soak those spots well by putting wet linen rags doubled upon them for a considerable time. If soaking in this manner does not get the spots out, put the *print* into hot water, gently boiling, or very near it, and let it continue for twenty-four hours; but if the paper be spongy, or very thin, it will not bear soaking so long. Soaking in this manner is seldom necessary. The foulness from flies may be gently brushed off with a wet sponge, when the *print* is thoroughly soaked. Spirit of sea-salt, much diluted, will get white-wash off *prints*: take care not to hold your nose over the vapour of the spirit. Do not leave your *prints* on the grass-plat at night, for fear of the worms.

885. *To marble Books or Paper.*

Marbling of books or paper is performed thus:—Dissolve four ounces of gum arabic in two quarts of fair water; then provide several colours mixed with water in pots or shells, and with pencils peculiar to each colour; sprinkle them by way of intermixture upon the gum water, which must be put into a trough, or some broad vessel; then, with a stick, curl them, or draw them out in streaks to as much variety as may be done. Having done this, hold your book, or books, close together, and only dip the edges in, on the top of the water and colours, very lightly; which done, take them off, and the plain impression of the colours in mixture will be upon the leaves: doing as well the ends as the front of the book in the like manner, and afterwards glazing the colours.

886. *To make Red Coral Branches for embellishing Grottos, and the Method of building a Grotto at a very little Expense.*

Dissolve clear rosin in a brass pan; to one ounce thereof add two drachms of the finest vermilion; and when you have stirred them well together, and have chosen your twigs and branches, peeled and dried, take a pencil and paint these twigs all over, whilst the composition is warm, and shape them in imitation of natural coral of black thorn; when done, hold it over a gentle coal fire, turn the branches about with your hand, and it will make it all over smooth and even, as if polished. In the same manner you may, with white lead, prepare white; and with lamp black, black coral.

A beautiful grotto may be built at a very little expense with glass cinders, which may easily be had, pebbles or pieces of large flint, and embellish it with such counterfeit coral, amber, pieces of looking-glass, oyster, muscle, and snail shells, moss, pieces of chalk, ore, &c. The cement to bind them together is as follows: take two parts of white rosin, melt it clear, add to it four parts of bees'-wax; when mixed together, add stone-flower of the stone you design to cement two or three parts, or so much as will give the cement the colour of the stone; to this add one part of flower of sulphur; first incorporate all together over a gentle fire, and afterwards knead it with your hands in warm water; with this cement the stones, after they are well directed, and have been warmed before the fire, in order to receive the cement the better.

887. *Admirable Cement, or Mortar, as made on the Cotswold Hills.*

On the Cotswold Hills, in Gloucestershire, where lime is dear, and sand not to be had, an excellent mortar is prepared at a moderate price. Invention is seldom more successful than when it is prompted by necessity. The scrapings of the public roads over these hills, being levigated limestone more or less impregnated with the dung and urine of the animals travelling on them, are found to be a most admirable basis for cement. The scrapings alone are frequently used for ordinary walls; and the general proportion, for even the best buildings, is not more than one part lime to three of scrapings. This mortar, of less than ten years standing, has been observed to possess a stone-like tenacity, much firmer than the common stone of the country; and, consequently, much harder than the stones from which either the basis or the lime was made. The method of preparing this cement is simply by collecting the road scrapings, slaking the lime, and mixing them very thoroughly together: carefully picking out, as the mass is worked over, the stones or other foulnesses which may have been collected. For stone work, this is quite sufficient; for brick work, it might be necessary to pass the materials through a screen or sieve, previously to their being united, and made up into mortar. Similar scrapings may be collected, wherever limestone is used as a material in making or repairing roads; this admirable mortar can, therefore, readily be prepared, in all such places, with very little trouble or expense.

888. Preparation of common Cement for joining Alabaster, Marble, Porphyry, or other Stones.

Take of bees'-wax two pounds, and of rosin one pound, melt them, and add one pound and a half of the same kind of matter, powdered, as the body to be cemented is composed of, strewing it into the melted mixture, and stirring them well together, and afterwards kneading the mass in water, that the powder may be thoroughly incorporated with wax and rosin. The proportion of the powdered matter may be varied, where required, in order to bring the cement nearer to the colour of the body on which it is employed.

This cement must be heated when applied; as must also the parts of the subject to be cemented together; and care must be taken likewise, that they be thoroughly dry.

When this composition is properly managed, it forms an extremely strong cement, which will even suspend a projecting body of considerable weight, after it is thoroughly dry and set, and is therefore of great use to all carvers in stone, or others who may have occasion to join together the parts of bodies of this nature.

Melted sulphur, applied to fragments of stones previously heated (by placing them before a fire) to at least the melting point of sulphur, and then joined with the sulphur between, makes a pretty firm and durable joining.

Chips out of corners, and similar little deficiencies in the stone, may also be filled up with melted sulphur, in which some of the powder of the stone has been mixed; but the stone should be previously heated.

889. Strong Cement.

To prevent the escape of the vapours of water, spirit, and liquors not corrosive, the simple application of slips of moistened bladder will answer very well for glass, and paper with good paste for metal. Bladder, to be very adhesive, should be soaked some time in water moderately warm, till it feels clammy, it then sticks very well; if smeared with white of eggs instead of water, it adheres still closer.

890. Cement for Iron Flues.

Common salt and sifted wood-ashes, equal parts, made into a paste with water, make a good cement for iron flues, &c. better than most other compositions, and may be applied when the flue is hot or cold. Iron-filings and vinegar will do as well, or rather iron-filings moistened with diluted muriatic acid. These are commonly used for filling up the spaces between cylinders.

891. To produce Gas Light, on a small scale.

Take an ordinary tobacco-pipe, and nearly fill the bowl with small coals, and stop the mouth of the bowl with any suitable luting, as pipe clay, or the mixture of sand and common clay, or, as clay is apt to shrink, of sand and beer, and place the bowl in a fire between the bars of a grate, so that the pipe may stand nearly perpendicular. In a few minutes, if the luting is good, the gas will begin to escape from the orifice of the pipe, when, if a piece of lighted paper or a candle be applied, it will take fire and burn for several minutes with an intense light. When the light goes out, a residuum of useful products will be found in the bowl.

892. The Phosphoric Pencil

Is a small bit of phosphorus, put into a quill, and kept in a phial, in water; when you write, dip your pencil often in the water, to prevent its taking fire.

893. The Fire Bottle.

Take as much unslacked lime as will lie on the point of a small penknife, put it into a short bottle, then put in about half a drachm of phosphorus, and shake it gently until it takes fire; then blow gently into the bottle until it has done crackling or frizzing, and it will be fit for use.

894. To make the Phosphoric Match Bottle.

These bottles may be prepared by mixing one part of flower of sulphur with eight of phosphorus. This requires caution, and should afterwards be handled with great care, lest any part of the mixture get under the finger nails, a small portion of which might occasion great inconvenience. When used to procure a light, a very minute quantity is taken out of the bottle on the point of the match, and rubbed upon cork or wood, which produces an immediate flame.

895. *To take Impressions on Paper from Designs made on Stone.*

The stone should be close grained, and the drawing or writing should be made with a pen dipped in ink, formed of a solution of lac, in leys of pure soda, to which should be added some soap and lamp-black for colouring; leave it to harden for a few days; then take impressions in the following manner: dip the surface in water, then dab it with printer's ink, and printer's balls; the ink sticks to the design, and not to the stone, and the impression may be taken with wet paper by means of a rolling or screw-press, in the ordinary manner. Several hundred copies may be taken from the same design in this simple manner.

896. *To make Transparent Screens for the Exhibition of the Phantasmagoria.*

Transparent screens are to be prepared by spreading white wax, dissolved in spirits of wine or oil of turpentine, over thin muslin. A screen so prepared will roll up without injury. A clearer screen may be produced by having the muslin always strained upon a rectangular frame, and prepared with turpentine instead of wax. Such a screen is not always convenient, and it cannot be rolled without cracking, and becoming in a short time useless. Therefore, nothing can be better for the purpose than the former.

897. *Thunder Powder.*

Take separately three parts of good dry saltpetre, two parts of dry salt of tartar, and pound them well together in a mortar; then add thereto one part, or rather more, of flower of brimstone, and take care to pound and mix the whole perfectly together: put this composition into a bottle with a glass stopper, for use.

Put about two drachms of this mixture in an iron spoon, over a moderate fire, but not in the flame; in a short time it will melt, and go off with an explosion like thunder or a loaded cannon.

898. *Sir Ashton Lever's Method of preserving Birds and Beasts.*

Beasts.—Large beasts should be carefully skinned, with the horns, skull, jaws, tail, and feet, left entire, the skins may then either be put into a vessel of spirit, or else rubbed well in the inside with the mixture of salt, alum, and pepper, hereafter mentioned, and hung to dry. Small beasts may be put into a cask of rum, or any other spirit.

Birds.—Large birds may be treated as large beasts, but must not be put in spirits. Small birds may be preserved in the following manner:—take out the entrails, open a passage to the brain, which should be scooped out through the mouth; introduce into the cavities of the skull, and the whole body, some of the mixture of salt, alum, and pepper, putting some through the gullet and whole length of the neck; then hang the bird in a cool airy place, first by the feet, that the body may be impregnated by the salts, and afterwards by a thread through the under mandible of the bill, till it appears to be sweet, then hang it in the sun, or near a fire; after it is well dried, clean out what remains loose of the mixture, and fill the cavity of the body with wool, oakum, or any soft substance, and pack it smooth in paper.

Fishes, &c.—Large fishes should be opened in the belly, the entrails taken out, and the inside well rubbed with pepper, and stuffed with oakum. Small fishes put in spirit, as well as reptiles and insects, except butterflies and moths; and any insects of fine colours, should be pinned down in a box prepared for that purpose, with their wings expanded.

899. *Birds shot in this Kingdom.*

When fresh killed, observe to put tow into the mouth, and upon any wound they may have received, to prevent the feathers being soiled; and then wrap it smooth, at full length, in paper, and pack it close in a box. If it be sent from a great distance, the entrails should be extracted, and the cavity filled with tow dipt in rum or other spirit. The following mixture is proper for the preservation of animals: one pound of salt, four ounces of alum, and two ounces of pepper, powdered together.

900. *Rules for collecting Curiosities on Sea Voyages.*

Set apart a small cask of spirits, into which put every uncommon sea production you may meet with during the voyage, and wrap every article separate in a rag, or a little oakum

901. *An artificial Water for writing Letters of Secrecy.*

Take copperas, finely powdered, put a little thereof into a new ink-horn, pour clean water on it; and after it has stood a little while write therewith, either on vellum or parchment, and the writing cannot be seen any other way than by drawing the letters through a water thus prepared.—Take a pint of water, put into it one ounce of powdered galls, temper it together, and strain it through a cloth; put the water into a dish that is wide enough, and draw your writing through it, and you will read it as you do other writings; and to make the secret contents less liable to suspicion, you may write on the contrary side of the paper or parchment, with black writing ink, matters of less consequence.

902. *Another.*

Take flake-white, or any other whitening, and dilute it in water impregnated with gum adragant. If you write with this liquor, the writing will not be perceivable unless you hold the paper to the sun or the light of a candle. The reason why it is so, is, that the rays of light do not pass with the same facility through the letters, formed with this liquor, as through the other parts of the paper.

903. *To write secretly on a Pocket Handkerchief.*

Dissolve alum in pure water, and write upon a fine white handkerchief, which, when dry, will not be seen at all; but when you would have the letters visible, dip the handkerchief in pure water, and it will be of a wet appearance all over, except where it was written on with the alum water.

You may also write with alum water upon writing paper, which will not be visible till dipped in water.

904. *To write in the Dark as straight as by Day or Candle Light.*

Write with a pencil on an ivory leaf; for if lines are drawn on the leaf with a needle, or any sharp point, they may be felt by the point of the pencil.

905. *Quicksilver.*

Tallow will take up quicksilver. Vinegar kills it.

906. *To revive a dull Fire.*

Powdered nitre, strewed on the fire, is the best bellows that can be used.

907. *To prevent Paper from sinking.*

If the paper used in superior editions of books, and which sinks so as to prevent its being written on, be dipped in alum-water, it may be written on. This practice was adopted by Peiresc. (*See his Life,* p. 199.)

908. *To harden Plaster of Paris Casts.*

Wash them well with a sponge dipped in alum-water.

909. *To take off a Gold Ring sticking tight on a Finger.*

Touch it with mercury, and it becomes so brittle that a slight blow with a hammer will break it.

910. *To make Phosphorus.*

Two third parts of quicklime (i. e. calcined oyster-shells), and one third of flower of brimstone, put into a crucible for an hour, and exposed to the air for an hour, become phosphorus.

911. *To judge of the Weather.*

"If a person intends to ride any where in winter, and suspects it will rain, he may know by the following observation eight hours before the rain comes on; and so resolve to take a great coat with him, or otherwise escape it, viz. Let him observe the top of the mercury in the tube of a barometer, and if rain be about to come, it will be indented or concave, *otherwise,* convex or protuberant. But as the barometer is sometimes deceitful, the point from which the wind blows and the appearance of the day are more certain."

912. *To brown Gun-Barrels.*

After the barrel is finished, to give it a brown colour, it is to be rubbed over with aquafortis, or spirit of salt diluted with water, and then to be laid by, for a week or more, till a complete coat of rust is formed. A little oil is then to be applied, and the surface being rubbed dry, it is to be polished by means of a hard brush and a little bees'-wax.

913. *To keep Arms and polished Metal from Rust.*

Dissolve one ounce of camphor in two pounds of hog's lard, observing to take off the scum; then mix as much black lead as will give the mixture an iron colour. Fire arms, &c. rubbed over with this mixture, and left with it on twenty-four hours, and then dried with a linen cloth will keep clean for many months.

914. *To prevent Humidity from being prejudicial to Powder Magazines.*

A Prussian officer of rank informed St. Pierre that having remarked vapours to be attracted by lead, he had employed it for drying the atmosphere of a powder magazine, constructed under ground, in the throat of a bastion, but useless from its humidity. He ordered the concave ceiling of the arch to be lined with lead, where the gunpowder was deposited in barrels: the vapours of the vault, collected in great drops on the leaden roof, run off in streamlets along the sides, and left the gunpowder barrels perfectly dry.

915. *To recover damaged Gunpowder.*

The method of the powder merchants is this: they put part of the powder on a sail cloth, to which they add an equal weight of what is really good; then, with a shovel, they mingle it well together, dry it in the sun, and barrel it up, keeping it in a dry and proper place.

916. *To increase the Force of Gunpowder.*

Dr. Baine says, three ounces of pulverized quicklime being added to one pound of gunpowder, its force is augmented one-third; shake the whole together till the white colour of the lime disappears.

917. *To make Sky Rockets.*

The charges for sky rockets are made of saltpetre four pounds, brimstone one pound, and charcoal one pound and a half; or by another direction, saltpetre four pounds, brimstone one pound and a half, charcoal twelve ounces, and meal powder two ounces. These proportions vary again according to the size of the rockets; in rockets of four ounces, mealed powder, saltpetre, and charcoal, are used in the proportions of 10, 2, and 1; but in very large rockets the proportions are, saltpetre four, mealed powder and sulphur one each. When stars are wanted, camphor, alcohol, antimony, and other ingredients, are required, according as the stars are to be blue, white, &c. In some cases gold and silver rain is required, then brass dust, steel dust, saw dust, &c. enter into the composition; hence the varieties may be almost indefinite. With respect to colour, sulphur gives a blue, camphor a white or pale colour, saltpetre a whitish yellow, sal-ammoniac a green, antimony a reddish, rosin a copper colour. These materials require preparation before they are fit for use; and before a person can be qualified for the business of fire-work making, he must understand the method of making the moulds, cases, &c. and be acquainted with the instruments used in the art, their dimensions and materials.

918. *Improvement in Fire-Works.*

Professor Proust has discovered that nitrate of soda is an economical article in their composition; and that five parts of the nitrate, one of charcoal, and one sulphur, afford a powder which produces a flame of a beautiful reddish yellow colour.

919. *To make Transparent Paper for Drawing.*

Tracing paper is readily made by taking a sheet of very thin silk, or other paper, and rubbing it over gently with some soft substance, filled with a mixture of equal parts of drying oil, and oil of turpentine, which, being suspended and dried, will be fit for use in a few days; or it may be had at any of the shops. Lay this transparent material on the print or drawing to be transferred, and, with a sharp black lead pencil, trace the outlines exactly as they appear through the paper. If more permanent or stronger lines are wished, ink mixed with ox-gall will be necessary to make it adhere to the oiled surface.

920. *To trace Drawings or Prints against the Light.*

There are two methods: one to lay the print, &c. flat against a pane of glass, with thin paper over it, when the lines appearing through it are to be followed by the lead: the other is more convenient, and consists of a frame enclosing a square of glass, supported by legs, on which the paper is laid as before, and a candle placed behind the glass. A pen and ink may be used in this manner, but they cannot in the former instance.

921. *Method of using Tracing Paper.*

Take a piece of the size required, and rub it equally over, on one side, with black lead, reduced to a powder, till the surface will not readily soil a finger; then lay a piece of white paper with the leaded side of this paper next to it, under the print; and securing them firmly together with pins at the corners, proceed to take the outlines with a blunt point, and some degree of pressure, which will transfer the lead to the clean paper precisely in the direction the point passed over the print; this may be corrected with the black lead pencil, and cleansed of any soil by the crums of stale bread.

922. *To copy Drawings, &c. with fixed Materials.*

Rub a thin piece of paper thoroughly and equally with fresh butter, and after well drying it by a fire, cover it with black lead, or with carmine, lamp-black, or blue bice, on the other side which received the butter. When the operation has so far succeeded, as that the colour will not adhere to any substance passed over it, lay the coloured surface on white paper, the print on it, and trace the subject through with a point as mentioned in the foregoing receipt.

923. *To transfer any Impression with Vermilion.*

Mix the colour with linseed oil in a state sufficiently fluid to flow from the point of a pen, with which let every line of the print be accurately traced; then wet the back of it, and, turning the face downwards on clean white dry paper, place the other paper on the back, and gently rub or press it till it may be supposed the red lines are completely transferred to the paper from the print.

924. *Transparent Paper.*

Wet some fine paper with a feather on both sides with a thin layer of rosin, dissolved in spirits of wine. It will then serve to put over any thing you wish to take off.

925. *Method of copying a Design.*

Wash the surface of a flat plate of glass with a solution of gum-arabic, in water, to which a small quantity of vinegar has been added; or you may, instead thereof, moisten the surface only with white of egg: when dry, lay the under side of the glass, which has not been moistened, on the design you want to copy, and with a soft red lead pencil trace the whole that you wish for. Then, having a sheet of white paper properly moistened, lay it upon your pencil drawing, and pressing it on the glass, take off the paper before the egg liquor is re-dissolved, and you will have your design transferred upon the paper from the glass.

926. *To preserve Pencil and Chalk Drawings.*

1st, Get a pan, or tub, sufficiently spacious to admit the drawing horizontally; fill it with clean water, and run the drawing through in that direction; then lay it on something flat to dry. This will take off the loose lead.

2dly, Fill the same vessel a second time with rather more than one-third new milk, and the remaining part clean water, through which run the drawing again horizontally, and leave it to dry as before.

Do not lay the drawing, while wet, on any coloured wood, such as mahogany, &c. which will stain the paper in streaks.

Should milk be scarce, you may mix a little (in the proportions above-mentioned), in a tea-cup, and venture to run the drawing lightly over with a camel-hair pencil, the water having already taken off the superfluous lead, and, in some degree, fixed the other: but be particularly light with the pencil, never touching the drawing twice in the same place.

927. *Method of setting Pencil Drawings.*

A solution of alum water, in which the drawing is to be dipped (not washed on with a brush, as it would smear) will answer the purpose extremely well.

928. *Wash for preserving Drawings made with a Black Lead Pencil, or with Hard Black Chalk.*

A thin wash of isinglass will fix either black lead or hard black chalk, &c. so as to prevent their rubbing out; or the same effect may be produced by the simple application of skimmed milk. The best way of using the latter, is, to lay the drawing flat upon the surface of the milk, and then, taking it up expeditiously, to hang it by one corner till it drains and dries. The milk must be perfectly free from cream, or it will grease the paper.

929. *Easy Method of taking off a perfect Copy of a Print or Drawing.*

Take a piece of clear lantern horn; lay it upon the print or picture you wish to take off; then, with a crow-quill dipped in Indian ink, draw every stroke of the outline upon the horn; when dry, breathe upon that side of the horn whereon you made your draught, three or four times, and place it directly on a damp piece of clean white paper, with the drawn side downwards; then pressing it hard with the palm of your hand, the drawing will stick to your paper, and the horn come off clear.

930. *To make a Drawing-desk or Frame.*

Cause a frame to be made of a reasonable size, so that a pretty large piece of crown glass may rest upon it, supported by a ledge at the bottom part, where, by two hinges, it may be fastened to a drawer of the same dimension, which may be divided to serve for pen, ink, and paper, and other small utensils, or instruments for drawing. To the top of the frame fix two stays, by which the frame may be raised higher or lower, as occasion may require.

The manner of using the frame is thus: lay the print or drawing you intend to copy on the glass, and fasten a sheet or piece of fine white paper, with some wafers or paste, upon it: if it be in the daytime, place the back, after you have raised the frame to a proper height, against the window, but if night, put a lamp behind it, and you will see every stroke of the print or drawing, which, with your pen, you may copy very accurately, and finish according to the manner you think proper; if it be a solid piece which you intend to copy, then place it behind the desk, and having fastened your paper in the frame, put the lamp so as to produce a strong shade on the object you have before you to draw, and you will plainly see to trace the shape with your pen, or black lead pencil; after which, shade it in the manner it appears to you without the desk.

931. *Directions for painting Rooms, Rails, &c.*

Red lead must be ground with linseed oil, and used very thin, it being the priming or first colouring; when used, some drying oils must be put to it.

932. *To prepare drying Oil and Paint.*

Put a Scots pint (two English quarts) of linseed oil in a pan, with a pint of burnt umber; boil it gently two hours; prepare this without doors, for fear of fire in the house; when it settles it will be fit for use; pour the clear off, and use it with the white lead; the dregs will do for the red lead.

933. *For the second Priming.*

Take a hundred weight of white lead, with an equal quantity of Spanish white in bulk but not in weight: grind them pretty stiff with linseed oil; when you use it, put in some of the above-mentioned drying oil, with a little oil of turpentine; but do not lay on this till the first coat is very dry.

934. *To make Putty and finish Painting.*

Mix a quantity of whitening, very stiff, with linseed oil, and drying oil, equal quantities; when it cannot be wrought by the hand, more whitening must be added, and beat up with a mallet, till it is stiffer than dough; when the second priming is dry, stop all holes and cracks with the putty; when hard and dry lay on the last paint, viz. grind the best white lead very stiff with linseed oil; when used put some of the drying oil to it, and oil of turpentine: this will preserve out-works a long time.

N. B. For rooms, and places within doors, your own fancy must direct you to the colours, only proceed as above.

935. *To prepare Blue Colour from Verdigris.*

Take sal-ammoniac and verdigris, of each six ounces; mix them well together with water of tartar to a paste; put this into a vial, and stop it close; let it stand for several days, and you will have a fine blue colour.

936. *Lead-coloured Paint for preserving Iron.*

Take a small quantity of common litharge, and place it over the fire in a shovel; afterwards, when sufficiently warm, scatter over it a little flower of brimstone, which will instantly convert it into a blackish colour, and which, when ground in oil, makes a good dark lead colour. It dries quick, gets remarkably hard, and resists the weather better than any other lead colour.

937. *Cheap black Paint from earthy and mineral Substances.*

Take of the bluish marly stone, found in copper, tin, and lead mines (principally in the copper mines), and of iron stone, and of fine blue marle of slate, and of ochre, equal quantities, and reduce them by grinding or pounding to a very fine powder. To any given quantity of the above-mentioned materials, when put together, add one-eighth of their weight of lamp-black, so that there will be seven-eighths of the earthy or mineral substances, and one-eighth of the lamp-black. This produces a superior black paint for wood, iron, canvas, or any other thing for which paint is used: but for the purpose of using such paint, it must be ground (in the usual manner of grinding colours) with oil, as commonly done by colourmen or painters (their boiled oil is to be preferred); and the same when mixed and made up as other paint generally is, may be used with the brush as in common practice. Ivory black may be substituted, but for general purposes the lamp-black is preferable.

938. *To make brown Paint.*

Take green muriate of copper, diluted with about ten parts of distilled or rain water; then pour in prussiate of lime until the whole is precipitated; the prussiate of copper is then to be well washed, with cold water, on the filter, and to be dried without heat.

939. *To prepare the beautiful Colour called Naples Yellow.*

The beautiful yellow colour, commonly sold under the name of Naples yellow, is well known. Those who buy it are often imposed upon, by being told that it is a substance produced from Mount Vesuvius, but it is now known to be a composition by art. The process is composed of the following substances, viz. one pound of antimony, one pound and a half of lead, half an ounce of alum, and the same quantity of common salt. The antimony and lead should be calcined together, afterwards the other ingredients added, and then the whole mixture undergoes a second calcination.

940. *Another Method.*

To procure this colour, take twelve ounces of white lead, three ounces of diaphoretic antimony, alum and sal-ammoniac, of each one ounce. All these must be ground together dry, upon a levigating stone; they must then be put into an open crucible, and exposed to a gentle fire for some hours; the fire is afterwards to be increased during a certain time; and finally, the mixture is to continue three hours in a degree of heat sufficient to keep the crucible red hot. The mass will then be found to have acquired a beautiful yellow colour. If it is wished to be more of the colour of gold, a greater quantity of diaphoretic antimony and sal-ammoniac must be added to the other ingredients.

It is probable that instead of diaphoretic antimony, the gray calx of antimony might be made use of.

941. *Mrs. Hooker's Method of preparing and applying a Composition for Painting in Imitation of the Ancient Grecian Manner.*

Put into a glazed earthen vessel four ounces and a half of gum-arabic, and eight ounces, or half a pint, (wine measure) of cold spring water; when the gum is dissolved, stir in seven ounces of gum-mastic, which has been washed, dried, picked, and beaten fine. Set the earthen vessel containing the gum-water and gum-mastic over a slow fire, continually stirring and beating them hard with a spoon, in order to dissolve the gum-mastic; when sufficiently boiled, it will no longer appear transparent, but will become opaque and stiff, like a paste. As soon as this is the case, and the gum-water and mastic are quite boiling, without taking them off the fire, add five ounces of white wax, broken into small pieces, stirring and heating the different ingredients together, till the wax is perfectly melted, and has boiled. Then take the composition off the fire, as boiling it longer than necessary would only harden the wax, and prevent its mixing so well afterwards with water. When the composition is taken off the fire, and in the glazed earthen vessel, it should be beaten hard, and whilst hot (but not boiling) mix with it, by degrees, a pint (wine measure) or sixteen ounces more of cold spring water: then strain the composition, as some dirt will boil out of the gum-mastic, and put it into bottles; the composition, if properly made, should be like a cream, and the colours when mixed with it as smooth as with oil. The method of using it, is to mix with the composition, upon an earthen pallet, such colours, in powder, as are used in painting with oil, and such a quantity of the composition to be mixed with the colours as to render them of the usual consistency of oil colours; then paint with fair water. The colours, when mixed with the composition, may be laid on either thick or thin, as may best suit your subject; on which account, this composition is very advantageous, where any particular transparency of colouring is required; but in most cases it answers best if the colours be laid on thick, and they require the same use of the brush as if painting with body colours, and the same brushes as used in oil painting. The colours, if ground dry, when mixed with the composition, may be used by putting a little fair water over them; but it is less trouble to put some water when the colours are observed to be growing dry. In painting with this composition, the colours blend without difficulty when wet, and even when dry the tints may easily be united by means of a brush and a very small quantity of fair water. When the painting is finished, put some white wax into a glazed earthen vessel over a slow fire, and when melted, but not boiling, with a hard brush cover the painting with the wax, and when cold, take a moderately hot iron, such as is used for ironing linen, and so cold as not to hiss, if touched with any thing wet, and draw it lightly over the wax. The painting will appear as if under a cloud till the wax is perfectly cold, as also whatever the picture is painted upon is quite cold; but if, when so, the painting should not appear sufficiently clear, it may be held before the fire, so far from it as to melt the wax but slowly; or the wax may be melted by holding a hot poker at such a distance as to melt it gently, especially such parts of the picture as should not appear sufficiently transparent or brilliant; for the oftener heat is applied to the picture, the greater will be the transparency and brilliancy of colouring; but the contrary effect would be produced if too sudden or too great a degree of heat was applied, or for too long a time, as it would draw the wax too much to the surface, and might likewise crack the paint. Should the coat of wax put over the painting, when finished, appear in any part uneven, it may be remedied by drawing a moderately hot iron over it again, as before-mentioned, or even by scraping the wax with a knife; and should the wax, by too great or too long an application of heat, form into bubbles at particular places, by applying a poker heated, or even a tobacco-pipe made hot, the bubbles would subside; or such defects may be removed by drawing any thing hard over the wax, which would close any small cavities.

When the picture is cold, rub it with a fine linen cloth. Paintings may be executed in this manner upon wood (having first pieces of wood let in behind, across the grain of the wood, to prevent its warping), canvas, card, or plaster of Paris. The plaster of Paris would require no other preparation than mixing some fine plaster of Paris, in powder, with cold water, the thickness of a cream; then put it on a looking-glass, having first made a frame of bees'-wax on the looking-glass, the form and thickness you would wish the plaster of Paris to be of, and when dry take it off, and there will be a very smooth surface to paint upon. Wood and canvas are best covered with some gray tint, mixed with the same composition of gum-arabic, gum-mastic, and wax, and of the same sort of colours as before-mentioned, before the design is begun, in order to cover the grain of the wood or the threads of the canvas. Paintings may also be done in the same manner, with only gum-water and gum-mastic, prepared the same way as the mastic and wax; but instead of putting seven ounces of mastic, and, when boiling, adding five ounces of wax, mix twelve ounces of gum-mastic with the gum-water, prepared as mentioned in the first part of this receipt; before it is put on the fire, and when sufficiently boiled and beaten, and is a little cold, stir in, by degrees, twelve ounces, or three-quarters of a pint (wine measure) of cold spring water, and afterwards strain it. It would be equally practicable painting with wax alone, dissolved in gum-water in the following manner: Take twelve ounces, or three-quarters of a pint (wine measure) of cold spring water, and four ounces and a half of gum-arabic, put them into a glazed earthen vessel, and when the gum is dissolved, add eight ounces of white wax. Put the earthen vessel, with the gum-water and wax, upon a slow fire, and stir them till the wax is dissolved, and has boiled a few minutes; then take them off the fire, and throw them into a basin, as by remaining in the hot earthen vessel the wax would become rather hard; beat the gum-water and wax till quite cold. As there is but a small proportion of water in comparison to the quantity of gum and wax, it would be necessary, in mixing this composition with the colours, to put also some fair water. Should the composition be so made as to occasion the ingredients to separate in the bottle, it will become equally serviceable, if shaken before used, to mix with the colours.

942. *To clean Oil Paintings.*

If smoked, or very dirty, take stale urine, in which a little common salt is dissolved; rub them over with a woollen cloth dipped in that, till you think them quite clean, then with a sponge wash them over with fair water; then dry them, and rub them over with a clean cloth.

943. *To take off, instantly, a Copy from a Print or Picture.*

Make a water of soap and alum, with which wet a cloth or paper; lay it either on a print or picture, and pass it once under the rolling press, then going round the other side to take it up, you will have a very fine copy of whatever you shall have laid it upon.

944. To clean and whiten Prints or Engravings.

Half fill a glass bottle with a mixture composed of one part of the red oxyd of lead, or minium, and three parts of the muriatic acid; and having closed the mouth of the bottle with a glass stopper, put it in a cool place not exposed to the light. A certain heat will then be produced, which is an indication that new combinations are formed. The oxyd of the lead abandons a considerable portion of its oxygen, which remains combined with the liquor: the latter then acquires a beautiful gold colour, and assumes the odour of the oxygenated muriatic acid. It holds in solution a small portion of the lead, which does not, in the least, injure its effect. It is necessary that the bottle should be of strong glass, and the stopper be well secured, in order to prevent the elastic vapour which rises from forcing it out. When you employ the liquor thus prepared, take a large pane of glass, and raise a kind of border of white wax around its edge, about two inches in height, and every way equal. By these means you form a sort of trough, into which put the prints, and pour over them a little fresh urine, or water mixed with a portion of ox gall. At the end of three or four days, pour off which of these liquids you have employed, and supply its place with warm water, which ought to be changed every three or four hours, until it comes off perfectly clear. When the matter, with which the prints are dirtied, is of a resinous colour, which sometimes happens, dip them in a little alcohol: afterwards suffer all the moisture to drain off, and cover the prints with the liquor of the oxygenated muriatic acid made by minium. Place on the edges of the wax another pane of glass, of the same size as that below, in order that you may not be too much incommoded by the smell of the acid; and you will plainly see the yellowest prints resume their original whiteness. One or two hours will be sufficient to produce the desired effect. Having then poured off the acid, wash the prints several times in pure water, and dry them in the sun.

945. To make Mezzotintos.

Mezzotintos are made in the following manner. Take a well-polished copper-plate, and, beginning at the corner, rake or furrow the surface all over with a knife or instrument made for the purpose, first one way and then the other, till the whole is of a regular roughness, without the least smooth part to be seen; in which state, if a paper was to be worked from it at the copper-plate press, it would be all over black. When this is done, the plate is rubbed over with charcoal, or black lead, and then the design is drawn with white chalk; after which, the outlines are traced out, and the plate finished, by scraping off the roughness, so as to leave the figure on the plate. The outlines and deepest shades are not scraped at all, the next shades are scraped but little, the next more, and so on, till the shades gradually falling off, leave the paper white, in which places the plate is neatly burnished.

946. To judge of Transparent Colours for Painting.

Transparent colours should be so clear, when mixed with abundance of water, as to communicate a strong tint without in the smallest degree plastering or concealing the paper, &c.: hence their designation. The best of every kind are made from either vegetable or animal substances, minerals being extremely difficult to prepare, equally so to work with water, and many of them very subject to change.

947. To prepare Ivory Leaves for Miniature Painters.

Take the ivory leaf, or table on which the painting is to be made, and, having cleansed it, rub it over with the juice of garlic. This takes off that greasiness which is so much complained of, as preventing the colours from taking on the ground, and which is not otherwise to be remedied by the use of soap or even gall. It is, however, effectually removed by the above simple preparation.

948. How to stencil, or multiply Patterns, for working Muslins, &c.

When a print or drawing is to be copied in this way, it must be placed upon a sheet of white paper, and the outline pricked through both with a pin or needle: the pierced sheet may then be laid on a second clean one, and a muslin bag of powdered charcoal shook or rubbed over it, when, upon removing the former, the latter will be found a perfect copy.

949. *To make an excellent Smelling Bottle.*

Take an equal quantity of sal-ammoniac and unslaked lime, pound them separate, then mix and put them in a bottle to smell to. Before you put in the above, drop two or three drops of the essence of bergamot in the bottle, then cork it close. A drop or two of ether, added to the same, will greatly improve it.

950. *To make Jessamine Butter, or Pomatum.*

Hog's lard melted, and well washed in fair water, laid an inch thick in a dish, and strewed over with jessamine flowers, will imbibe the scent, and make a very fragrant pomatum.

951. *To make Milk of Roses.*

To one pint of rose water, add one ounce of oil of almonds, and ten drops of the oil of tartar.

N. B.—Let the oil of tartar be poured in last.

952. *Wash for the Skin.*

Four ounces of pot-ash, four ounces of rose-water, two ounces of pure brandy, and two ounces of lemon juice; put all these into two quarts of water, and when you wash, put a table-spoonful or two of the mixture into the basin of water you intend washing in.

953. *Method of extracting Essences from Flowers.*

Procure a quantity of the petals of any flowers which have an agreeable fragrance; card thin layers of cotton, which dip into the finest Florence or Lucca oil; sprinkle a small quantity of fine salt on the flowers, and lay them, a layer of cotton, and a layer of flowers, until an earthen vessel or a wide-mouthed glass bottle is full. Tie the top close with a bladder, then lay the vessel in a south aspect to the heat of the sun, and in fifteen days, when uncovered, a fragrant oil may be squeezed away from the whole mass, little inferior (if that flower is made use of) to the *dear* and *highly valued* Otto or Odour of Roses.

954. *To make the [illegible]essence of Lavender, or other Aro[illegible]atic Herbs.*

Take off the blossoms from the stalks, which must be cut fresh at sun-rising in warm weather; spread the blossoms on a white linen cloth, and lay them in the shade for twenty-four hours; after which, stamp or bruise them; then put them, immersed in warm water, into the still, near a fire, and let them infuse for the space of five or six hours, so closely covered that nothing may exhale from it; after which time, take off the covering, and quickly put on the helm, and lute it carefully. You must, in the beginning, draw over half the quantity of the water you put in. If you take away the receiver, you will see the quintessence on the surface of the water, which you may easily separate from it. Then put the distilled water back again, and distil it over again, till there appear no more of the quintessence on the water. You may distil this water four or five times over, according as you perceive the quintessence upon it.

The best distilling utensils for this work are those for the *balneum mariæ*, or sand bath; meanwhile you may, after the common method, distil the ingredients on an open fire. But if you intend to make quintessence for waters, you may make use of common salt, in order to extract the more quintessence of any blossom.

Take four pounds of blossoms of any aromatic plant, and infuse in it six quarts of water. If you use salt to bring your infusion to a ferment, add half a pound of common salt to it.

955. *To obtain Aromatic Oils from the Pellicle which envelopes the Seeds of the Laurus Sassafras, and Laurus Benzoin.*

The method of obtaining these oils is, to boil the pellicle which surrounds the seeds of the sassafras and benjamin-tree, in water, when they float upon its surface, from which they may be skimmed with a spoon.

That of the sassafras differs materially from the oil obtained from the bark of the root of this tree. Its aroma is different, it is much lighter, and it congeals in a higher degree of heat.

The oil of the benzoin-tree is a delightful aromatic, is very inflammable, and might be used as a spice in food, and in all those diseases in which the aromatic oils are useful. It has been tried with success, as a[illegible]ernal application, in a case of severe chronic rheumati[illegible] One half pound of the pellicle of the seeds will yield several ounce measures

956. *To make Eau de Luce.*

Take of spirit of wine one ounce, spirit of sal-ammoniacum four ounces, oil of amber one scruple, white Castile soap ten grains. Digest the soap and oil in the spirits of wine, add the ammoniacum, and shake them well together.

957. *To make Hungary Water.*

Take a quantity of the flowers of rosemary, put them into a glass retort, and pour in as much spirit of wine as the flowers can imbibe; dilute the retort well, and let the flowers macerate for six days, then distil it in a sand heat.

958. *To make Otto (or Odour) of Roses.*

Pick the leaves of roses from all seeds and stalks, put them in a clean earthen vessel, glazed within, or a clean wooden vessel. Pour spring water on them, so as to cover them; set the vessel in the sun in the morning at rising, and leave it in the sunshine till sunset; then take them into the house; repeat this for six or seven days, and in three or four days there will be a fine yellow oily matter on the surface of the water; and, in two or three days more, there will appear a scum upon the surface, which is the otto of roses. This may be taken up with cotton, and squeezed into a phial with the finger and thumb.

Remark.—It is suspected that there is some mistake in this receipt, and it has passed to the public through very many hands. It was published in the Transactions of the Royal Society of Edinburgh, on the authority of Dr. D. Monro, of London, who received it from Major Mackenzie, who again got it from an officer of his corps, whose name is not mentioned.

The account given by Polier in the Transactions of the Bengal Society is very different. It is needless to detail it, for it is exactly the process of an European distiller: cohobation on fresh leaves, and exposure to slight cold, to congeal the essential oil, which is skimmed off or taken up by cotton, and squeezed into phials.

It is conjectured, that in the manufacture or production of otto, which is thought to be profitable in the East, and the reverse in Europe, the difference cannot be in the price of labour, or similar circumstances, which European skill would more than compensate; but in the fact, that there is a market for rose-water in the East, from the quantity used in washing hands, sprinkling rooms and garments, and similar purposes, to which the demand of the European apothecary and confectioner is comparatively insignificant. It is but a thin film of congealed essential oil which a great quantity of rose-water will afford; and after it is taken off, the water is still very good. In India it may be sold; in Europe it is waste; for to employ it in fresh distillations is clearly to waste a manufactured article.

959. *To make Lip Salve.*

Take an ounce of white wax and ox marrow, three ounces of white pomatum, and melt all in a bath heat; add a drachm of alkanet, and stir it till it acquire a reddish colour.

960. *To make the celebrated Pomade Divine.*

According to Dr. Beddoes, this composition is as follows, viz. beef marrow twelve ounces, steeped in water ten days, and afterwards in rose-water twenty-four hours; flowers of benjamin, pounded storax, and Florentine orris, of each half an ounce; cinnamon, a quarter of an ounce; and clove and nutmeg, a quarter of an ounce. The whole to be put in an earthen vessel, closely covered down, to keep in the fumes, and being suspended in water made to boil three hours; after which, the whole is to be strained and put into bottles.

961. *To make Soft Pomatum.*

Take what quantity of hog's lard you choose to make; cut it down in small pieces, and cover it with clear spring water, changing it every twenty-four hours for eight days; when it is quite white, put it into a pan, and melt it over a clear fire; when it is all melted, strain it, and put to it some essence of lemon to perfume it: so keep it for use.

962. *To make Hard Pomatum.*

For hard pomatum, blanch the hog's lard in the same manner, as also some mutton suet, and boil them together with a little white wax; scent it with essence of lemon or lavender, then make round paper cases, and when cold turn down the other end, and keep it for use.

963. *Genuine Windsor Soap.*

To make this famous soap for washing the hands, shaving, &c. nothing more is necessary than to slice the best white soap as thin as possible, melt it in a stew-pan over a slow fire, scent it well with oil of caraway, and then pour it into a frame or mould made for that purpose, or a small drawer, adapted in size and form to the quantity. When it has stood three or four days in a dry situation, cut into square pieces, and it is ready for use. By this simple mode, substituting any more favourite scent for that of caraway, all persons may suit themselves with a good perfumed soap at the most trifling expense. Shaving boxes may be at once filled with the melted soap, instead of a mould.

964. *To prepare Aromatic Vinegar.*

Take of common vinegar any quantity; mix a sufficient quantity of powdered chalk, or common whitening, with it, to destroy the acidity. Then let the white matter subside, and pour off the insipid, supernatant liquor; afterwards let the white powder be dried, either in the open air, or by a fire. When it is dry, pour upon it sulphuric acid (oil of vitriol), as long as white acid fumes continue to ascend. Stone vessels are the properest to be used on this occasion, as the acid will not act upon them. This product is the acetic acid, known in the shops by the name of aromatic vinegar. The simplicity and cheapness of this process points it out as a very useful and commodious one for purifying prisons, hospital-ships, and houses, where contagion is presumed or suspected, the white acid fumes diffusing themselves quickly around.

If any one is desirous of obtaining the acid in a liquid state, the apparatus of Nooth presents a convenience for the purpose. It must of course be collected in water. But the muriatic acid is cheaper, and much more expansible.

965. *To increase the Growth of Hair.*

Hartshorn beat small, and mixed with oil, being rubbed upon the head of persons who have lost their hair, will cause it to grow again as at first.

966. *To promote the Growth of Hair.*

Mix equal parts of olive oil and spirits of rosemary, and add a few drops of oil of nutmeg. If the hair be rubbed every night with a little of this liniment, and the proportion be very gradually augmented, it will answer every purpose of increasing the growth of hair, much more effectually than can be attained by any of the boasting empirical preparations which are imposed on the credulous purchaser.

967. *To know whether Hair Powder is adulterated with Lime.*

Put a little crude sal-ammoniac, in powder, to the suspected hair powder, and add a little warm water to the mixture, and stir it about; if the powder has been adulterated with lime, a strong smell of volatile alkali will arise from this mixture.

968. *To perfume Hair Powder.*

Take one drachm of musk, four ounces of lavender blossoms, one and a half drachm of civet, and half a drachm of ambergris; pound the whole together, and pass it through a sieve. Preserve this mixture in well-stopped bottles. and add more or less thereof, as agreeable, in your hair powder.

969. *Preparation of the Greek Water (or the Solution of Silver, for the converting red or light-coloured Hair into a deep Brown).*

Take silver filings and dissolve them in spirit of nitre. The spirit of nitre, and the silver, being put in a mattrass, must be placed, first, in a gentle sand heat, and afterwards removed where the fluid may be made to boil for a short time. Being taken out of the sand-heat, while yet hot, add as much water as may have evaporated during the boiling; and, when the solution is grown cold, decant off the clear fluid from the sediment, if there be any, and the undissolved part of the silver filings; which may be dissolved afterwards, by adding more spirit of nitre, and repeating the same treatment.

(Lunar caustic dissolved in water is precisely the same. It is sold by the chemists for about half-a-crown an ounce; the salt is more pure and cheaper than it can be made in small quantities.)

Note.—The solution of silver, thus obtained, with common water, is the Greek water used for turning red or light-coloured hair to brown. Its efficacy may be greatly improved by washing the hair before the application of the water, with common water in which some soda has been dissolved. The proportion may be an ounce and a half of pure soda to a pint of the water; but it requires a frequent repetition to change the colour of the hair; and care must be taken that a sufficient quantity of water be added to dilute the solution, to prevent its destroying the hair, or, perhaps, excoriating the skin by its causticity. At least double the quantity of water should be therefore added.

The hair must first be cleaned from powder and pomatum, with a small tooth-comb, and then washed with the soda and water till all grease, pomatum, &c. be got out; then use the Greek water in the following manner, first shaking the bottle: Take as much hair as can conveniently be wetted, and with a bit of sponge, tied on a little stick dipped in the Greek water, wet the hair well, and so proceed till all is wetted; let it dry by sun, air, or fire, before you repeat it, which must be done four times, and must afterwards be washed with the soda and water, all which may easily be done in eight hours. A cloth should be put on the shoulders, and do not let the Greek water touch the skin, or as little as possible. To make yourself expert, first try, according to the above directions, to dye a lock of hair that is not growing on the head; and make the Greek water stronger or weaker, according as you find it necessary.

970. *A more convenient Dye for the Hair.*

The defect of the preceding composition is, that it stains the *skin* as well as the *hair;*—this inconvenience does not attend the following preparation.

Into a glass phial or porcelain or clean-glazed earthenware vessel, filled with strong clear lime-water, put a little litharge in fine powder. The lime-water will dissolve a portion of the litharge in the cold, and a greater quantity by the application of a boiling heat. When the solution is complete, pour it into a bottle, and keep it stopped. More lime-water may be put to the remaining litharge. By evaporation in a retort, the solution is concentrated, and yields very small transparent crystals, about as soluble in water as lime.

It blackens the hair and the nails; but as it does not affect the colour of the skin, nor of animal oils, it may be applied every time that the face is washed, or the hair combed. It is decomposed by the sulphats of alkalies and sulphurated hydrogen gas.

971. *For taking away superfluous Hair.*

Quicksilver, two ounces; yellow orpiment, one ounce; starch, one ounce; litharge, one ounce; sift them through silk, and dilute them with soap and water till they become a paste. Anoint the part, and let it dry for five minutes; then scratch off the hair with the nail. Wash immediately in warm water.—*From La Forest 'L'Art de soigner les Pieds.'*

972. *Pearl White.*

Bismuth dissolved in aquafortis is pearl white. This, though at first it whitens, afterwards blackens the skin, as all preparations from lead do; and therefore none of them are safely to be used.—*Dr. Moyes's Lectures.*

973. *For preserving the Nails.*

One ounce of oil of bitter almonds; one drachm of oil of tartar per deliquium; one ounce of prepared crabs-eyes. Mix up with essence of lemon to scent it.

La Forest recommends rubbing the nails with lemon as a detergent.

974. *Rules for Fly Fishing.*

A fishing fly is a bait used in angling for various kinds of fish. The fly is either natural or artificial. The chief of the natural flies are the "stone fly," found under hollow stones at the sides of rivers, between April and July; it is brown, with yellow streaks, and has large wings. The "green-drake," found among stones by river sides; it has a yellow body ribbed with green; it is long and slender, with wings like a butterfly, and is common in the spring. The "oak fly," found on the body of an oak or ash, is of a brown colour, and common during the summer months. The "palmer fly or worm," found on the leaves of plants, when it assumes the fly state from that of the caterpillar; it is much used in trout fishing. The "ant fly," found on ant hills from June to September. The "May fly" is to be found playing at the river side, especially before rain. And the "black fly," which is to be found upon every hawthorn after the buds are off. There are two ways to fish with natural flies, either on the surface of the water, or a little underneath it. In angling for roach, dace, &c the fly should be allowed to glide down the stream to the fish, but in every still water the bait may be drawn by the fish, which will make him eagerly pursue it.

There are many sorts of artificial flies to be had at the shops; they are made in imitation of natural flies, and the rules for using them are as follow: Keep as far from the water's edge as may be, and fish down the stream with the sun at your back; the line must not touch the water. In clear rivers the angler must use small flies with slender wings, but in muddy waters a larger fly may be used. After rain, when the waters are muddy, an orange-coloured fly may be used with advantage; in a clear day, the fly must be light coloured, and in dark water the fly must be dark. The line should, in general, be twice as long as the rod; but, after all, much will depend upon a quick eye and active hand. Flies made for catching salmon must have their wings standing one behind the other. This fish is said to be attracted by the gaudiest colours that can be obtained; the wings and tail should be long and spreading.

975. *To prevent taking cold while Angling*

Avoid sitting upon the ground, though it may appear dry, for the heat of the body will cause a moisture which soon cools, and may be sensibly felt. If the angler, through age or infirmity, is incapable of standing long, a piece of coarse woollen cloth, doubled two or three times, will be very useful to sit upon, especially in fishing for barbel, roach, and dace, where the angler is confined to one place.

976. *To improve the Sport of Angling, by Attention to the Dress.*

Some attention should be paid to the colour of an angler's dress; it is natural to conclude, that green would be most eligible, as it would vary little from those objects with which fish are familiarised, such as trees growing near the sides of rivers, and herbage on the banks; yet, as this particular colour might be disagreeable to many, the angler should avoid all strong contrasts to those objects, particularly scarlet, and very light colours.

977. *To intoxicate and take Fish.*

Make a paste in the following manner: Take cocculus indicus, cummin seeds, fenugreek seeds, and coriander seeds, equal parts; reduce them to powder, and make them into a paste, with rice, flour, and water; reduce this paste into small balls of the size of peas, and throw it into such ponds or rivers where there are fish, which, after eating thereof, will *rise to the* surface *of the water almost motionless,* and will allow themselves to be taken out by the hand.

978. *Method of making the best Sort of Bird Lime, and Manner of using it.*

Take, at midsummer, the bark of holly, and peel from the tree so much of it as will fill a moderately large vessel; then put to it running water, and set it over the fire, and *boil it till the grey and white bark rise from the green, which* will take up sixteen hours; then separate the barks after the water is well drained away; then take all the green bark, and lay it on the ground in a close place and moist floor, and cover it over with green weeds, as hemlocks, docks, thistles, and the like; thus let it lie ten or twelve days, in which time it will rot, and turn to a filthy slimy matter; then put it into a mortar, and beat it till it becomes universally thick and tough, without the discerning of any part of the bark or substance; then take it out of the mortar, and carry it to a running stream, and there wash it well, not leaving any foulness about it; then put it up in a very close earthen pot, and let it stand and purge for divers days together, scumming it as often as any foulness arises for four or five days; when you perceive no more scum, then take it out of that pot, and put it into another clean earthen vessel, cover it close, and keep it for use.

When you want to use your lime, take what quantity you think fit, and put it into a pipkin, adding a third part of goose or capon's grease, finely clarified, and set them over a gentle fire; let them melt together, and stir them continually till they are well incorporated; then take it from the fire, and stir it till it be cold.

When your lime is cold, take your rods and warm them a little over the fire; then take your lime and wind it about the tops of your rods, then draw your rods asunder one from the other, and close them again, continually plying and working them together, till, by smearing one upon another, you have equally bestowed upon each rod a sufficient proportion of the lime.

If you lime any strings, do it when the lime is very hot and at the thinnest, besmearing the strings on all sides, by folding them together and unfolding them again.

If you lime straws, it must be done likewise when the lime is very hot, doing a great quantity together, as many as you can well grasp in your hand, tossing them and working them before the fire till they are all besmeared, every straw having its due proportion of lime. Having so done, put them in cases of leather till you have occasion to use them.

To prevent the freezing of your lime, either on twigs, bushes, or straws, you must add a quarter as much of the oil of petroleum as of capon's grease, mixing them well together, and then work it on your rods, &c.; and so it will ever keep supple, tough, and gentle, and will not be prejudiced should the weather freeze ever so hard.

979. *Experienced Method of catching Larks.*

The common way of taking larks, of which so many are used at our tables, is in the night, with those nets which are called trammels. These are usually made of thirty-six yards in length, and about six yards over, with six ribs of packthread, which, at the ends, are put upon two poles of about sixteen feet long, and made lesser at each end. These are to be drawn over the ground by two men, and every five or six steps the net is made to touch the ground, otherwise it will pass over the birds without touching them, and they will escape. When they are felt to fly up against the net, it is clapped down, and then all are safe that are under it. The darkest nights are properest for this sport; and the net will not only take larks, but all other birds that roost on the ground, among which are woodcocks, snipes, partridges, quails, fieldfares, and several others.

980. *Another Method.*

In the depth of winter, people sometimes take great numbers of larks by nooses of horse-hair. The method is this:

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980. *Another Method.*

In the depth of winter, people sometimes take great numbers of larks by nooses of horse-hair. The method is this:

take 100 or 200 yards of packthread; fasten, at every six inches, a noose made of double horse-hair; at every twenty yards the line is to be pegged down to the ground, and so left ready to take them. The time to use this is when the ground is covered with snow, and the larks are to be allured to it by some white oats scattered all the way among the nooses. They must be taken away as soon as three or four are hung, otherwise the rest will be frightened; but though the others are scared away where the sportsman comes, they will be feeding at the other end of the line, and the sport may be thus continued for a long time.

981. *Breeding and Management of Canary Birds.*

Canary birds, that are kept tame, will breed three or four times in the year; they usually begin in April and breed in May and June, though sometimes in July and August.

Towards the middle of March, begin to match your birds, putting one cock and one hen in a small cage: and when they have been so long together, that they are perfectly reconciled and well pleased with each other, towards the end of March or the beginning of April, put them into the breeding cage for that use; let it be full large, so that the birds may have the more room to fly and exercise themselves; let there be two boxes in the cage for the hen to build in, because she will sometimes hatch a second brood before the first are fit to fly, leaving the care of them to the cock to feed and bring them up, whilst she breeds in the other box; therefore if she has not a spare box to build in, she will be apt to make her nest upon the birds, (as it sometimes happens) and smother them, or build so near that they will spoil one another. Whilst your birds are pairing, feed them with soft meat, egg, bread, maw seed, and a little scalded rape seed, hardly a third part of egg; this last, and the bread, grated fine, and so mix it together.

When they have young ones, give the same soft victuals fresh every day, and let them have fresh greens likewise, such as cabbage-lettuce, now and then; but give them more constantly chick-weed with seeds upon it; towards June, shepherd's purse; in July and August, plantain; and before they have young ones, give them groundsel, with seed upon it.

I would recommend to such persons who breed only a few birds for their own diversion, to use very large cages, it being much the best way; but those who intend to breed a number should prepare a room for that purpose.

Let the situation of it be such that the birds may enjoy the benefit of the morning sun, which is both delightful and nourishing, and let wire, instead of glass, be at the windows, that they may have the advantage of the air, which will add to their health, and make them thrive the better; keep the floor of the room clean, sometimes sifting fine gravel or sand, and often removing the dung and the other foul stuff. You must take care to fix nest boxes and back cages in every convenient corner and place in the room, at least twice the number that you have of birds, that they may have the more variety to choose a lodging to their minds; for some love to build high, and some very low, some in a light place, and others will choose a dark place to build in.

There ought to be two windows in the room, one at each end, and several perches, at proper distances, for the birds to settle upon as they fly backwards and forwards.

You may set likewise a tree in some convenient part of the room; it will divert the birds, and some of them will like to build in it. You must observe, that their nest is secure from falling through, and if in danger, to tie the tree closer, to prevent it, and they will hatch there as well as in any other place.

Remember not to put too many birds together; eight or ten pair are enough for a middling room. When your birds are first paired, as directed before, turn them into the room, where they will live, as it were, a conjugal life; and notwithstanding there are several male and female birds in the same room, one cock and one hen, as they first couple together, will keep constant to each other, and both concur and assist in sitting and feeding their young, for the cock bird takes his turn in building the nest, sitting upon the eggs, and feeding the young, as well as the hen.

Of their nests, and how to order their young.

You must furnish the birds with stuff for making their nests, such as fine hay, wool, cotton, and hair; let these materials be thoroughly dry; then mix and tie them up together in a net, or some such thing, so that the birds may easily pull it out as they want it, and let it be hung in a proper place in the room for that purpose.

They build a pretty nest, about which they will sometimes be so industrious, as to begin and finish it in one day, though they are generally two or three days in making their nest; the hen lays commonly four or five eggs, and sits fourteen days.

When the young are hatched, leave them to the care of the old ones to nurse and bring up till they can fly and feed themselves. The hen, as I said before, by reason of their rankness in being kept together, and provided with all things necessary at hand, without any trouble in seeking their food, &c. will sometimes build and hatch again before the first can shift for themselves, the care of which she transfers to the cock-bird, who will feed and nurse them himself, supplying the part of both parents, while she brings on and attends her new progeny: but it is not so with those birds that live at large in the fields; they observe their season for breeding, and, after they have hatched, company with their brood till their young are grown up, and able to provide for themselves.

When the young canary birds can feed themselves, take them from the old ones, and cage them; if they are flying about the room, to catch them bring a spare cage with some soft victuals in it, taking the other meat that is in the room away, and placing the cage there in its stead, with the door open, and a string fastened thereto, then stand at a distance, and the old ones will presently, for the sake of the meat, entice the young ones into the cage; then pull the string, and shut in as many as you can, and catch them.

Let their meat be the yolk of an egg hard boiled, with as much of the best bread, and a little scalded rapeseed; when it is boiled soft, bruise the seed fine, and put a little maw seed amongst it, and mix it all together, and give them a sufficient quantity fresh every day; never let it be stale or sour: besides this, give them a little scalded rapeseed, and a little rape and canary by itself. You may keep them to this diet till they have done moulting, and afterwards feed them as you do the old ones, unless at any time they are sick, then continue it.

982. *Paste or Food for Singing Birds, superior to the German Paste in common Use.*

Well mix, or knead together, three pounds of split peas, ground or beat to flour, one pound and a half each of fine crums of bread and coarse sugar, the fresh yolks of six raw eggs, and six ounces of unsalted butter. Put about a third part of the mixture, at a time, in a frying pan, over a gentle fire, and continually stir it till it be a little browned, but by no means burnt. When the other two parts are thus done, and all are become cold, add to the entire quantity six ounces of maw seed, with six pounds of good bruised hemp seeds separated from the husks. Mix the whole well together, and it will be found an excellent food for thrushes, red robins, larks, linnets, canary birds, finches of the different sorts, and most other singing birds, admirably preserving them in song and feather.

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983. *Avoid, as much as possible, living near Church-Yards.*

The putrid emanations arising from church-yards are very dangerous; and parish churches, in which many corpses are interred, become impregnated with an air so corrupted, especially in spring, when the ground begins to grow warm, that it is prudent to avoid this evil as much as possible, as it may be, and, in some cases, has been, one of the chief sources of putrid fevers which are so prevalent at that season.

984. *Valuable concise Rules for preserving Health in Winter.*

Keep the feet from wet, and the head well defended when in bed; avoid too plentiful meals; drink moderately warm and generous, but not inflaming liquors; go not abroad without breakfast. Shun the night air as you would the plague; and let your houses be kept from damps by warm fires. By observing these few and simple rules, better health may be expected than from the use of the most powerful medicines.

985. *Preventive of Autumnal Rheumatisms.*

For the sake of bright and polished stoves, do not, when the weather is cold, refrain from making fires. There is not a more useful document for health to the inhabitants of this climate, than "Follow your feelings."

986. *To promote Sleep.*

No fire, candle, rush-light, or lamp, should be kept burning, during the night, in a bed-room, for it not only vitiates the air in a very considerable degree, but also disturbs and prevents the rest of those whose sleep is uneasy, particularly the aged. In a dark apartment, sleep generally comes on without much invitation; whereas, any light in the apartment stimulates the brain, and consequently the whole nervous system, and dispels any tendency to repose.

987. *The Use of Tar Water in expanding the Lungs of Public Speakers, &c.*

It has been found by the experience of many, that drinking tar water very much deterges and opens the lungs, and thereby gives a very sensibly greater ease in speaking. A quart of tar is to be stirred six minutes in a gallon of water; but if there be somewhat less tar it may do as well, especially at first, to try how it sits on the stomach. Take about one-fourth of a pint, at four several times, at a due distance from meals. Begin taking it in the spring for about fourteen days, and continue it for a greater length of time, as occasion may require.

988. *German Method of preventing Hysterics.*

Caraway seeds, finely pounded, with a small proportion of ginger and salt, spread upon bread and butter, and eaten every day, especially early in the morning, and at night, before going to bed, are successfully used in Germany, as a domestic remedy against hysterics.

989. *Hints for ventilating Stage Coaches.*

The plan is to have a hole perforated through the centre of the roof of the carriage, of three inches diameter, with a tube or chimney, one or two inches long, above the top of the same; into which tube a fine grating might be fixed, if necessary, to prevent the outside passengers putting any thing through. A slide might also be placed in a groove within the carriage, to enable the inside passengers to close the tube at pleasure.

990. *Best Mode of avoiding the fatal Accidents of Open Carriages.*

Jumping out is particularly dangerous (the motion of the gig communicating a different one to the one you give yourself by jumping), which tends very much to throw you on your side or head; many suppose it very easy to jump a little forward, and alight safe; 'tis supposition; they will not find it so on trial. The method of getting out behind the carriage is the most safe of any, having often tried it, when the horse has been going very fast.—Perhaps it is best to fix yourself firm, and remain in the carriage.

991. *To fumigate Foul Rooms.*

To one table-spoonful of common salt and a little powdered manganese in a glass cup, add, four or five different times, a quarter of a wine glass of strong vitriolic acid. At every addition of the acid the vapour will come in contact with the malignant miasmata, and destroy them.

992. *To make a truly valuable Fumigation Powder.*

Nitre, four pounds; sulphur, two pounds; southern wood and juniper-berries, of each three pounds; tar and myrrh a pound and a half. This was tried at Moscow in 1772, and ten malefactors, under sentence of death, were fumigated well with this in the Lazaretto, and were confined for three weeks in this abode, saturated with infection, made to sleep with persons infected with the plague, and even dead of it, and not one was infected, or made ill of the disease. The vapour arising from the decomposition of nitre by the vitriolic acid is perfectly harmless to be breathed, and may be employed in every situation. This was used by *Mr.* M'Gregor, after the plan of Dr. Carmichael Smith, who relates, he lost, in ten weeks at Jersey, in putrid fever, fifty men from the 88th regiment; but beginning the fumigation, not only the fever was banished the hospital, but that it changed the nature of the existing fever; all the *malignant symptoms disappeared, and of sixty soldiers ill* of the fever not one died.

It is now ascertained that common muriatic gas, or, still better, oxymuriatic gas, is the best for destroying contagion, chiefly from superior expansibility. Both are easily obtained. Place a glass, porcelain, or salt-glazed earthenware vessel, in an iron pot filled with hot sand: For muriatic gas pour upon two parts of common salt (muriat of soda) placed in the glass vessel, one and a half parts of vitriolic, acid (that is oil of vitriol);—for the oxigenated muriatic on a mixture of two parts of common salt, with one part of the black oxide of manganese in powder, pour two parts of vitriolic acid, diluted with its weight of water. The muriatic gas occasions no inconvenience, except rusting fire-iron utensils, which may be previously removed. The oxymuriatic should not be used where there is any danger of its being inhaled, as it is poison when breathed in any considerable quantity. Guyton Morveau has invented an oxymuriatic fumigating bottle, which will retain its power, if properly managed, for years. It is quite certain that the common aromatic fumigating substances, sulphuric acid and the firing of gunpowder, are ineffectual. That the action of the sulphurous and acetous acid is slow and incomplete, and that acetic acid, which acts instantly and effectually on the fetid air, cannot be obtained, in sufficient quantity, and sufficiently concentrated, except at an enormous expense.

993. *General Rules for the Choice of Spectacles, and for the Preservation of the Sight.*

[*From Mr. Adam's Essay on Vision.*]

The most general, and perhaps the best rule that can be given, to those who are in want of assistance from glasses, in order so to choose their spectacles that they may suit the state of their eyes, is to prefer those which show objects nearest their natural state, neither enlarged nor diminished, the glasses being near the eye, and that give a blackness and distinctness to the letters of a book, neither straining the eye, nor causing any unnatural exertion of the pupil. For no spectacles can be said to be properly accommodated to the eyes, which do not procure them ease and rest; if they fatigue the eyes, we may safely conclude, either that we have no occasion for them, or that they are ill made, or not proportioned to our sight.

Though in the choice of spectacles, every one must finally determine for himself which are the glasses through which he obtains the most distinct vision; yet some confidence should be placed in the judgment of the artist of whom they are purchased, and some attention paid to his directions. By trying many spectacles, the eye is fatigued, as the pupil varies in size with every different glass, and the eye endeavours to accommodate itself to every change that is produced. Hence the purchaser often fixes upon a pair of spectacles not the best adapted to his sight, but those which seem to relieve him most, while his eyes are in a forced and unnatural state, and, consequently, when he gets home, and they are returned to their natural state, he finds what he has chosen fatiguing and injurious to his sight.

394. *Of Preservers, and Rules for the Preservation of Sight.*

Though it may be impossible to prevent the absolute decay of sight, whether arising from age, partial disease, or illness, yet by prudence and good management, its natural failure may certainly be retarded, and the general habits of the eyes strengthened, which good purposes will be promoted by a proper attention to the following maxims:—

1. Never to sit for any length of time in absolute gloom, or exposed to a blaze of light. The reasons on which this rule is founded, prove the impropriety of going hastily from one extreme to the other, whether of darkness or of light, and show us that a southern aspect is improper for those whose sight is weak and tender.

2. To avoid reading small print.

3. Not to read in the dark; nor, if the eyes be disordered, by candle-light. Happy those who learn this lesson betimes, and begin to preserve their sight before they are reminded by pain of the necessity of sparing them. The frivolous attention to a quarter of an hour in the evening, has cost numbers the perfect and comfortable use of their eyes for many years; the mischief is effected imperceptibly, the consequences are inevitable.

4. The eye should not be permitted to dwell on glaring objects, more particularly on first waking in a morning; the sun should not, of course, be suffered to shine into the room at that time, and a moderate quantity of light only be admitted. It is easy to see that, for the same reasons, the furniture of a bed should be neither altogether of a white or red colour: indeed, those whose eyes are weak would find considerable advantage in having green for the furniture of their bed-chamber. Nature confirms the propriety of the advice given in this rule; for the light of the day comes on by slow degrees, and green is the universal colour she presents to our eyes.

5. The long-sighted should accustom themselves to read with rather less light, and somewhat nearer to the eye than what they naturally like, while those that are short-sighted

should rather use themselves to read with the book as far off as possible; by this means both would improve and strengthen their sight; while a contrary course will increase its natural imperfections.

There is nothing which preserves the sight longer than always using, both in reading and writing, that moderate degree of light which is best suited to the eye; too little strains them, too great a quantity dazzles and confounds them. The eyes are less hurt by the want of light than by the excess of it; too little light never does any-harm, unless they are strained by efforts to see objects to which the degree of light is inadequate; but too great a quantity has, by its own power, destroyed the sight. Thus many have brought on themselves a cataract, by frequently looking at the sun, or a fire; others have lost their sight by being brought too suddenly from an extreme of darkness into the blaze of day. How dangerous the looking on bright luminous objects is to the sight, is evident from its effects in those countries which are covered the greater part of the year with snow, where blindness is exceeding frequent, and where the traveller is obliged to cover his eyes with crape, to prevent the dangerous and often sudden effects of too much light; even the untutored savage tries to avoid the danger, by framing a little wooden case for his eyes, with only two narrow slits. A momentary gaze at the sun will, for a time, unfit the eyes for vision, and render them insensible to impressions of a milder nature.

The following cases, from a small tract on the "*Fabric of the Eye*," are so applicable to the present article, as to want no apology for their insertion here, though, if any were necessary, the use they will probably be of to those whose complaints arise from the same or similar causes would, I presume, be more than sufficient:

"A lady from the country, coming to reside in St. James's Square, was afflicted with a pain in her eye, and a decay in her sight. She could not look upon the stones, when the sun was upon them, without great pain. This, which she thought was one of the symptoms of her disorder, was the real cause of it. Her eyes, which had been accustomed to the verdure of the country and the green of the pasture grounds before her house, could not bear the silent and unnatural glare of light reflected from the stones; she was advised to place a number of small orange trees in the windows, so that their tops might hide the pavement, and be in a line with the grass. She recovered, by this simple change in the light, without the assistance of any medicine; though her eyes were before on the verge of little less than "blindness."

A gentleman of the law had his lodgings in Pall Mall, on the north side, his front windows were exposed to the full noon sun, while the back room, having no opening but into a small close yard, surrounded with high walls, was very dark; he wrote in the back room, and used to come from that into the front room to breakfast, &c. His sight grew weak, and he had a constant pain in the balls of his eyes; he tried visual glasses, and spoke with oculists, equally in vain. Being soon convinced, that the coming suddenly out of a dusky study, into the full blaze of sunshine, and that very often in the day, had been the real cause of his disorder, he took new lodgings, by which, and forbearing to write by candle-light, he was very soon cured.

Blindness, or, at least, miserable weakness of sight, is often brought on by these unsuspected causes. Those who have weak eyes should therefore be particularly attentive to such circumstances, since prevention is easy, but the cure may be difficult and sometimes impracticable.

When the eye sensibly flattens, all delay is dangerous; and the longer those, who feel the want of assistance, defer the use of spectacles, the more they will increase the failure of the eye; there are too many who procrastinate the use of them, till at last they are obliged to use glasses of ten or twelve inches focus, instead of those of thirty-six or forty, which would otherwise have suited them; thus preferring a real evil to avoid one that is imaginary. Mr. Thomin mentions several deplorable cases of this kind, particularly one of a lady, who through false shame had abstained from wearing spectacles so long a time, that at last it was impossible to suit her, but with those adapted to eyes that have been couched. Whereas the instances are numerous of those who, by using glasses of a long focus at the first approaches of long-sightedness, have brought back their eyes to their natural sight, and been able to lay aside their spectacles for years.

995. *Comfort for those nearly Blind.*

Inscriptions on dark blue glazed paper, written with white ink, have been found very legible by persons afflicted with bad eyes, who have had many things written in a strong plain hand for that purpose. The ink is made with gum water and flake white, finely powdered; it must be often shaken, even whilst you are writing, as the flake white very soon subsides. A common pen will do very well for the writing. A bright yellow, or dark green paper, is likewise very easily read.

996. *To cure a Bruise in the Eye.*

Take conserve of red roses, and also a rotten apple, put them in a fold of thin cambric, apply it to the eye, and it will draw the bruise out.

997. *To prevent the Effects of Poison of Lead on Painters, Glaziers, &c.*

The physicians and surgeons of the Bath Hospital have ordered the following cautions to be made public, to be observed particularly by printers or compositors, plumbers, glaziers, painters, and other artificers.

To maintain the strictest temperance respecting distilled spirits, which had better be altogether forborne. To pay the strictest attention to cleanliness; and never, when it can be avoided, to daub their hands with paint; and, particularly, never to eat their meals, or go to rest, without washing their hands and face. Not to eat or drink in the room or place wherein they work, and much less to suffer any food or drink to remain exposed to the fumes or dust of the metal in the rooms or warehouses. As the clothes of persons in this line (painters particularly) are generally observed to be much soiled with the colours they use, it is recommended to them to perform their work in frocks of ticking, which may be frequently washed, and conveniently laid aside, when the workmen go to their meals, and again put on when they resume their work. Every business which can, in these branches, should be performed with gloves on the hands; and woollen or worsted gloves are recommended, as they may be often washed, as they should always be after being soiled with paint, or even by much rubbing against the metal. Caution is necessary in mixing, or even in unpacking the dry colours, that the fine powder does not get into their mouths, or be drawn in by their breath. A crape covering over the face might be of service; but care should be taken to turn always the same side towards the face, and to clean or wash it frequently. All artificers should avoid touching lead when hot; and this caution is especially necessary for printers or compositors, who have often lost the use of their limbs by handling the types when drying by the fire, after being washed. Glaziers' putty should never be made or moulded by the hand. An iron pestle and mortar would work the ingredients together, at least equally well, and without hazard.

998. *To prevent the baneful Effects of burning Charcoal.*

Set an uncovered vessel, filled with boiling water, over the pan containing the charcoal, the vapour of which will counteract the deleterious fumes, and while it keeps boiling will make charcoal as safe as any other fuel.

999. *To prevent the Mischief arising from the Bite of a Mad Dog.*

Where the excision of the part bitten can be immediately performed, it is the best preventive of danger, or where the part can be burnt out by the application of a red hot iron, little danger is likely to happen. Nothing else is at all to be depended on.

1000. *To prevent Death from the Bite of venomous Animals.*

From observations made by Dr. Bancroft, it is found, that in South America, where the most venomous serpents abound, a very tight ligature, instantly made after the bite between the part bitten and the trunk of the body, will prevent immediate danger, and allow time for proper means of remedy, either by excision of the whole joint, just above the ligature, or by topical applications upon the part bitten.

For instance, if the bite should be upon the end of the finger, a tight ligature of small cord should immediately be made beyond the next joint of the finger.

If the bite is on any part of the hand, the ligature should be made above the wrist by means of a garter or cord, lapped several times round the arm and rendered as tight as possible by a small stick thrust betwixt the folds of the cord or garter, and twisted round very hard, to prevent the circulation of the blood betwixt the part bitten and the other part of the body. Ligatures of the same kind, applied by any one present, or the man himself, will frequently save a person's life, where, by accident, an artery in any of the limbs is wounded, and the person would otherwise bleed to death before regular surgical assistance could be given.

1001. *To destroy Vermin in Children's Heads.*

Take an ounce of vinegar, one ounce of stavesacre, well powdered, half an ounce of honey, half an ounce of sulphur, and two ounces of sweet oil; mix the whole well together into a liniment, and rub the head repeatedly with a little thereof.

1002. *Method of causing Children to cut their Teeth easily.*

Feed them with an ivory spoon and boat, to be made thick, round, and smooth at the edges; ivory being of the same hardness and texture as the jaws and tender teeth, the gums are not hurt or injured, but when they are thus pressed facilitate the teeth in their progress; whereas the silver implements, being of a hard texture, and the edges made thin, bruise and wound the gums, and make a hard seam; so that the teeth cannot make their way direct, and if they do cut, come irregularly; so that the operation of lancing is frequently absolutely necessary, which of course must prejudice the teeth, as some are exposed before the time they are fit to cut.

By this method, fevers, convulsions, &c. owing to the teeth being not able to find their way through the hard seam, may be prevented. It must be often observed, that children cry much when feeding, as if ill, or disgusted with their food, whereas it is frequently owing to quite the contrary; for, being hungry, and over eager to take their food, they press hard, through eagerness, on the boat and spoon, which, being sharp, bruises and cuts the gums, and consequently causes great pain, which by the ivory implements will be prevented. Those who cannot afford ivory may have horn or wood, or even pewter is greatly preferable to silver, provided the edges are made thick, round, and smooth. The wooden sort, unless they are kept very sweet and clean, on that very account, are the least eligible, and should be made, however, of box, or such hard and close textured wood as is the least liable to be tainted by the milky food.

1003. *Rules for the Preservation of the Teeth and Gums.*

The teeth are bones, thinly covered over with a fine enamel, and this enamel is more or less substantial in different persons. Whenever this enamel is worn through by too coarse a powder, or too frequently cleaning the teeth, or eaten through by a scorbutic humour in the gums, the tooth cannot remain long sound, any more than a filbert kernel can, when it has been penetrated by a worm.

The teeth, therefore, are to be cleaned, but with great precaution, for if you wear the enamel off faster by cleaning the outside than nature supplies it within, your teeth will suffer more by this method than perhaps by a total neglect. A butcher's skewer, or the wood with which they are made, must be bruised and bit at the end, till with a little use it will become the softest and best brush for this purpose, and in general you must clean your teeth with this brush alone, without any powder whatever; and once in a fortnight, or oftener, dip your skewer-brush into a few grains of gunpowder, breaking them first with the brush, and this will remove every spot and blemish, and give your teeth an inconceivable whiteness. It is almost needless to say that the mouth must be well washed after this operation, for, besides the necessity of so doing, the saltpetre, &c. used in the composition of gunpowder, would, if it remains, be injurious to the gums, &c. but has not, nor can have, any bad effect in so short a time.

It is necessary to observe, that very near the gums of people, whose teeth are otherwise good, there is apt to grow a false kind of enamel, both within and without, and this false enamel or tartar, if neglected, pushes the gums higher and higher, till it leaves the fangs of the teeth quite bare, above the true enamel, so that sound teeth are destroyed, because the gum has forsaken that part which is not sheathed and protected in consequence of such neglect. This false enamel must therefore be carefully scaled off, for the gum will no more grow over the least particle of this enamel, than the flesh will heal over the point of a thorn.

1004. *To prevent the Tooth-Ache.*

Clean the teeth well and regularly.

1005. *Easy, safe, and pleasant Method of removing Tartar from the Teeth.*

Raspberries or strawberries (particularly the latter) frequently eaten, have been found, by experience, to dissolve the tartareous concretions of the teeth; and Linnæus asserted that in his own case they completely cured the gout; viz. the strawberry eaten plentifully.

1006. *Tincture for the Teeth and Gums.*

Mix six ounces of tincture of Peruvian bark with half an ounce of sal-ammoniac. Shake them well a few minutes every time, before the tincture is used. The method of using it is, to take a tea-spoonful and hold it near the teeth; then, with a finger dipped in, rubbing the gums and teeth, which are afterwards to be washed with warm water. This tincture not only cures the tooth-ache, but preserves both the teeth and gums, and makes them adhere to each other.

1007. *Tooth Powder.*

To one ounce of fine powder of bark, and one ounce of gum myrrh, add three-fourths of an ounce of bole armenic, mix these ingredients well together, and they will produce an excellent tooth powder, valuable in itself, and highly approved of by many gentlemen of the faculty.

1008. *Another.*

Pound charcoal, as fine as possible, in a mortar, or grind it in a mill, then well sift it, and apply a little of it to the teeth about twice a week, and it will not only render them beautifully white, but will also make the breath sweet, and the gums firm and comfortable.

If the charcoal is ground in a mortar, it is convenient to grind it in water, to prevent the dust from flying about. Indeed the powder is more convenient for use when kept in water.

1009. *Easy and almost instantaneous Cure for the Ague.*

When the fit is on, take a new-laid egg, in a glass of brandy, and go to bed immediately.

This very simple recipe has cured a great many, after more celebrated preparations have proved unsuccessful.

1010. *M. Homassel's Account of his Cure for Burns or Scalds.*

Take half a pound of alum in powder, dissolve it in a quart of water; bathe the burn or scald with a linen rag wet in this mixture; then bind the wet rag thereon with a slip of linen, and moisten the bandage with the alum water frequently, without removing it, in the course of two or three days. He relates that one of his workmen, who fell into a copper of boiling liquor, where he remained three minutes before taken out, was immediately put into a tub containing a saturated solution of alum in water, where he was kept two hours; his sores were then dressed, with cloths and bandages, wet in the above mixture, and kept constantly moistened for twenty-four hours, and that in a few days he was able to return to business.

1011. *Remedy for Burns.*

A little spirit of turpentine, applied to recent burns, will mitigate the pain, if not wholly remove it.

1012. *Another.*

A little sweet oil and lime water, shaken together, makes a liniment, which, when kept applied to the part, will remove the pain.

1013. *Efficacy of Vinegar in Curing Burns and Scalds.*

The application of vinegar to burns and scalds is to be strongly recommended. It possesses active powers, and is a great antiseptic and corrector of putrescence and mortification. The progressive tendency of burns of the unfavorable kind, or ill-treated, is to putrescence and mortificacation. Where the outward skin is not broken, it may be freely used every hour or two; where the skin is broken, and if it gives pain, it must be gently used. But equal parts of vinegar and water, in a tepid state, used freely every three or four hours, are generally the best application, and the best rule to be directed by.

House-leek, either applied by itself, or mixed with cream, gives present relief in burns, and other external inflammations.

1014. *Porter Plaster for Bruises.*

This *simple, singular,* and *safe* remedy for bruises is nothing more than a gallon of porter simmered in an earthen vessel, till, when cool, it will be of the consistence of a plaster. This preparation was spread on an old glove, and applied round the ancle of a coachman, who was thrown off his box, and miserably bruised. In three days it so effectually performed a cure, that *coachee* was enabled to remount his box, perfectly relieved from all swelling and pain.

1015. *Easy Method of attracting Earwigs from the Ear.*

A person lately having an earwig crept into his ear, and knowing the peculiar fondness that insect has to apples, immediately applied a piece of apple to the ear, which enticed the creature out, and thereby prevented the alarming consequences which might have otherwise ensued.

1016. *To kill Earwigs, or other Insects, which may accidentally have crept into the Ear.*

Let the person under this distressing circumstance lay his head upon a table, the side upwards that is afflicted; at the same time let some friend carefully drop into the ear a little sweet oil, or oil of almonds. A drop or two will be sufficient, which will instantly destroy the insect, and remove the pain, however violent.

1017. *For a Pain in the Ear.*

Oil of sweet almonds two drachms, and oil of amber four drops; apply four drops of this mixture, when in pain, to the part affected.

1018. *Remedy for Deafness.*

Put a table-spoonful of bay-salt into near half a pint of cold spring water, and after it has steeped therein twenty-four hours, (now and then shaking the phial), cause a small tea-spoonful of the same to be poured into the ear most affected, every night when in bed, for seven or eight nights successively, observing to lay your head on the opposite side, by which the cure is generally completed.

1019. *For Chilblains.*

Soak them in warm bran and water, then rub them well with mustard-seed flour; but it will be better if they are done before they break.

1020. *To prevent Corns from growing on the Feet.*

Easy shoes; frequently bathing the feet in luke-warm water, with a little salt or pot-ashes dissolved in it.

The corn itself will be completely destroyed by rubbing it daily with a little caustic solution of potash, till a soft and flexible skin is formed.

1021. *Cure for Warts.*

The milky juice of the stalks of spurge, or of the common fig-leaf, by persevering application, will, to a certainty, soon remove them.

1022. *Court Plaster.*

Take of isinglass, half an ounce; Turlington's (or Friar's) balsam, a drachm; melt the isinglass in an ounce of water, and boil the solution till a great part of the water is consumed; then add gradually to it the balsam, stirring them well together. After the mixture has continued a short time on the fire, take the vessel off, and spread the extended silk with it, while it is yet fluid with heat, using a brush for spreading it.

1023. *Certain Cure for the Cramp.*

An effectual preventive for the cramp in the calves of the legs, which is a most grievous pain, is to stretch out the heel of the leg as far as possible, at the same time drawing up the toes towards the body. This will frequently stop a fit of the cramp after it has commenced; and a person will, after a few times, be able, in general, to prevent the fit coming on, though its approach be between sleeping and waking. Persons subject to this complaint should have a board fixed at the bottom of the bed, against which the foot should be pressed when the pain commences.

1024. *Simple Remedy for the Cure of Lameness by Contraction. From the Gentleman's Magazine, July,* 1809.

“Many years ago, while I lived at Yeovil, in Somersetshire, my advice as a surgeon was desired for a poor man's child, a boy about nine years old, one of whose legs was contracted more than when a person is sitting in a chair; he could neither stretch it out, nor move it. I prescribed a relaxing liniment, of which currier's oil was one chief ingredient; and ordered the parts affected to be gently rubbed; but it was of no great service. I then considered what farther might be done for his relief: and it came into my mind that the glovers of the town brought their kid-skins, which were dry, stiff, and hard, to be soft and supple as gloves, by rubbing them with a liquor made of the yolks of eggs and water; thereupon I ordered the contracted parts of his leg to be gently rubbed two or three times a day with the egg liquor; and by this means he soon recovered the perfect use of his leg. The liquor I advise to be thus made: take the yolk of a new laid egg, let it be beaten with a spoon to the greatest thinness, then, by a spoonful at a time, add three ounces of pure water, agitating the mixture that the egg and water may be well incorporated, and let it be applied by gentle friction.

"This remedy I have since advised in like cases with the like happy success; and others to whom I have communicated it have found the same advantage in similar cases. I therefore, for the good of those afflicted with lameness by contraction, transmit the above."

Remark.—Friction is well known to be useful in such cases; and whether the cure is performed by the egg, or the friction, is of no moment.

1025. *To make Cliver, or Goose-grass Ointment; remarkable for its salutary Effects in Cases of inveterate Scurvy.*

To a pound of hog's-lard melted, without spice or salt, put as much clivers as the lard will moisten, and boil them together over a slow fire; after stirring it till it becomes a little brown, strain it through a cloth; and when cold take the ointment from the water that will remain at the bottom, and it will be fit for use.

1026. *Easy Method of curing the Sea Scurvy.*

The root of the garden carrot abounds in a nutritious saccharine juice, and is slightly aromatic. These are desirable properties against the scurvy. To experience the good effects of these properties, *the roots must be eaten raw.* There is nothing unpleasant in this; on the contrary, it is what the common people often do by choice. These roots would keep well during the longest voyage, packed up in casks, having the interstices filled with sand. Each sailor might be allowed to eat one root every day, or every other day, according to the state of their health, and the quantity of roots on board.

1027. *Method for the speedy Recovery of the Use of the Foot or Hand that has been violently sprained.*

It may lead to a right management of the part strained, if we consider the effects of a strain when it is very great.

First. Such an extension of the tendons and vessels of the muscles strained, that they cannot contract themselves to their natural lengths.

Second. That the great elongation of the vessels, which deprives them of their contractile power, lessens the diameter of their cavities, obstructs the free course of the fluids through them, makes them swell and become painful, and incapable of their actual service, or of being moved by the acts of the will, as before the accident happened.

These effects of violent sprains may lead us to conclude, that the best remedies are those applications which may best attenuate their obstructed fluids, recover an easy circulation of them, and sufficiently contract the elongated vessels.

For these purposes I advise vinegar, the rectified spirits of wine, such as are burnt in lamps, friction and motion, in the following manner, viz.

Suppose the ancle sprained.

First. Let it be fomented with vinegar, a little warm, for four or five minutes at a time, once every four hours; this will render the circulation of the fluids in the parts affected more easy, and either prevent its swelling or promote its subsiding.

Second. Let the person stand three or four minutes at a time on both his feet in their natural posture, and sometimes move the sprained foot, and sometimes when sitting with his foot on a low stool let him move it this way and that, as he can bear it: this will contribute much to contract the over-stretched vessels, and to recover a due circulation of their fluids through them.

Third. Let a gentle dry friction with a warm hand be sometimes used to the parts affected, which will conduce much to the same ends.

Two hours after every application of vinegar, let the parts affected be just wetted with rectified spirits of wine, and gently rubbed.

By these means, persons to whom I have advised them have recovered from the effects of very violent sprains in a few days, when others have been weeks in recovering, where different ways of management, such as continual resting of the strained foot, and disuse of its motions, &c had been recommended

1028 *To alleviate the Pain occasioned by the Sting of Gnats*

The disagreeable itching occasioned by the sting of these insects may be removed by volatile alkali, or immediately rubbing and washing the part affected with cold water

At night, to rub with fuller s earth and water lessens the inflammation

1029 *Simple and effectual Cure for those who may accidentally have swallowed a Wasp*

Instantly, on the alarming accident taking place, put a tea-spoonful of common salt in your mouth, which will instantaneously not only kill the wasp, but at the same time heal the sting

1030 *To cure the Sting of a Wasp or Bee*

To the part affected, apply oil of tartar, or solution of potash, and it will give instant ease, as also well bruised mallows

1031 *Another*

Sweet oil, applied immediately, cures the sting of wasps or bees, and if the sting is left in the wound, it should if possible, be extracted with hair pincers

1032 *Another*

The immediate application of Eau du Luce to many persons who have been stung by wasps, has caused the pain to subside in a few seconds, and after a few minutes all inflammation ceased

1033 *Another.*

It has been found, by experience, that a good remedy for the sting of wasps and bees, is to apply to the part affected common culinary salt, moistened with a little water Even in a case where the patient had incautiously swallowed a wasp in a draught of beer, and been stung by it in the windpipe, the alarming symptoms that ensued were almost instantly relieved by swallowing repeated doses of water, saturated with salt.—The rubbing of the part stung, with a slice of onion, will give immediate ease.

1034. *To prevent Sea Sickness.*

Drop a few drops of vitriolic æther upon loaf sugar, and let it dissolve in your mouth; or drink a few drops of æther, added to a solution of sugar, in water, to prevent its immediate evaporation.

1035. *Remedy for a Sore Throat.*

Take rosemary tops, about a handful, put them into a basin, and pour a pint of boiling hot verjuice upon it; then cover it over with a tin funnel, the broad side downwards, and the steam will come through the nozzle of the funnel; then hold your mouth over the steam till it is gone down your throat.

N. B. Be very careful that you do not put your mouth too close to the funnel, as it may scald it, but let the steam go down your throat as much as possible, and repeat it as often as necessary.

1036. *A common Drink for a Sore Throat.*

Take two ounces of Turkey figs, and the like quantity of raisins of the sun, and cut them small; two ounces of French or pearl barley, boiled in three pints of spring water till it comes to a quart, and then strain through a sieve. To be taken warm. Boil it slowly over a gentle fire.

1037. *Gargle for a Sore Throat.*

Take half a pound of Turkey figs, put them into a quart of spring water, and let them simmer over a slow fire till better than one-half is wasted; in the mean time, take a large lemon, cut it in slices, and between every slice put some brown sugar-candy, and let it stand before the fire to roast; then strain the figs, and squeeze them through a coarse cloth, and put the juice of the lemon into it.

N. B. Gargle the throat with it warm, and the oftener the better.

1038. *A Receipt for a Cough.*

Take a glass of spring water and put into it a spoonful of the syrup of horehound, and mix with it nine or ten drops of the spirit of sulphur.

1039. *An excellent Styptic.*

The outside woof of silk-worms has been tried with great success by several people, more especially by a lady, who, in mending a pen, cut her thumb to the bone, and through part of the nail; it bled profusely; but by trying this styptic, and binding up the wound, the hemorrhage stopped, and the wound healed in three days.

1040. *A new and useful Styptic.*

Take brandy, or common spirit, two ounces; Castile soap, two drachms, pot-ash one drachm; scrape the soap fine, and dissolve it in the brandy; then add the pot-ash, and mix it well together, and keep it close stopped from the air in a vial. When you apply it, warm it in a vessel, or dip pledgets of lint into it, and the blood will immediately congeal. It operates by coagulating the blood, both a considerable way within the vessels, as well as the extravasated blood without, and restraining, at the same time, the mouths of the vessels.

It forms a valuable embrocation, in cases of tumors or swellings from bruises, by being frequently rubbed on the part. It is also used in a similar manner for rheumatic pains.

1041. *Infallible Remedy for stopping Bleeding of the Nose.*

One ounce of sugar of lead, and half an ounce of green vitriol, to be triturated in a glass mortar; add to these half a pint of spirits of wine. Of this composition, young people, from ten to twelve years of age, are to take ten or twelve drops; patients under twenty years, fourteen or fifteen drops; and grown persons, twenty drops, four times each, in a spoonful of wine or brandy. Some very interesting trials, in the most obstinate cases, have been made with this mixture, with the greatest success.

Remark.—No salt of lead should be taken *internally* without medical advice. It is a powerful drug; that is, if the proper precautions or proportions are neglected or exceeded, it is a strong poison. The green vitriol can have no other effect than to decompose part of the sugar or acetite of lead; that is, to convert the acetite, in part, into sulphat of lead, which is insoluble; and nearly all the green vitriol, or sulphat of iron, into acetite of iron.

1042. *For curing Worms in the Human Body.*

Take senna leaves, well bruised, half a pound; olive oil, twelve ounces; digested together in a sand heat four or five days; then, by a strong expression, force the oil from the fæces, which reserve by itself.

N. B.—In the most obstinate worm case, which eludes the force of mercurials, and baffles the efforts of the most famous specifics, this successfully kills worms, grubs, and ascarides (which last kind cause extreme itching), and by stools expels them.

Dose:—one spoonful, fasting, and persevere in it.

1043. *To make an Improved Tincture of Bark.*

Red bark grossly powdered, one ounce: of snake root, in powder, six drachms; saffron, one drachm and a half; cochineal, ten grains; orange peel, one ounce and a half. Steep the above articles in one pint of the best brandy, and you will have a tincture equally good as the famous Dr. Huxham's.

1044. *Observations on Leeches, and their Use.*

The general demand for these useful reptiles, and the high price at which they are now sold, induces us to give some particulars on taking, preserving, and applying them, from a person who has attended to this business.

The large brown leech is the only kind in use; they are in general from two inches to six, though they are capable of much greater extension and contraction: sometimes they are seen darting through the water with great swiftness, at which time they are very long; at other times they will contract themselves into a form almost round. They are much rounder in body than the horse leech (which, contrary to common report, will not fasten to the human body), with a degree of taper towards each end. The colour is black and brown stripes on their backs; the belly is covered with dark brown, interspersed with light brown spots. The method of catching them usually employed in England, is agitating the waters where they are contained, which occasions them to float upon the surface thereof, when, with a net made for the purpose, they are secured. Other methods are employed, which would be tedious and unnecessary to relate. They are viviparous, bringing forth their young with all their power, capable of acting in every respect in which this animal is distinguished. The time of fecundity is in the months of April and May, the latter end of August and September;—the number of young ones a single leech brings forth in one year can hardly be ascertained, though it is very numerous; for when the leech catchers rob a pond of all large enough for use, if nothing happens to obstruct fecundation, in two years afterwards they will find it largely stored with abundance of fine leeches, and a much increased number of small ones; this is particularly found to be the case, from the method which some country people have adopted to obtain leeches as an exclusive property. In order to this, they make a pond, near their house, about three feet deep, twenty wide, and thirty long; if they cannot conveniently form one with a sandy bottom, they make the pond a little deeper, in which they deposit a few loads of sandy earth. In this pond, when filled with water, they put their leeches about April, and without any further trouble or expense, they obtain, at the proper season, a large supply of leeches.

Leeches may, with care, be preserved healthy and good for years in pans; during the summer season not more than two hundred should be kept together; in winter, double that number may with equal propriety. The vessel they are kept in should be an earthen pan, that will contain about three gallons of water, which should not be more than half filled with water; for I have found, by experience, that it is congenial to their nature to have a place out of the water, which they may retreat to at pleasure; this is proved by their often hanging in clusters round the top of the pan. From May till September their water should be changed, at least, every other day; in winter every fourth day. The best water to keep them in is spring water, as being least disposed to putrescency. I have of late put a little moss amongst leeches, which practice I would recommend, for they are very much enamoured with it, perhaps from its resembling, in some measure, their native weeds; they creep through it, and by that means clear themselves of slime, which in the warm weather accumulates around them, and, unless removed by timely changes of water, will be productive of disease. During hot weather they should be kept in as cool a place as possible, and in the winter season place them where the water may preserve that degree of warmth it possesses in summer. When you put fresh water to them, during the cold weather, it should be deprived of that intense coldness which it possesses at that season of the year, by warming it in the smallest degree. The leech, as has been before said, feeds upon insects in its native waters, but may be, as above hinted, kept in water only for years, though they dwindle by keeping; they remain healthy, and will take with as much avidity as those recently taken from the waters, provided they are well attended to, with respect to changing their water agreeably to the rules laid down.

The mode which I have found, by copious experience, to be infinitely the best (being attended with quickness, certainty, and efficacy), is as follows: Let the part be first carefully washed clean with warm milk and water; if very dirty and requiring it, a little soap may also be used; when the part is thus washed and wiped dry, rub over the part a little milk, then see that your leech is wiped dry with a smooth cloth, which being done, take it with your fingers by the middle, and apply its mouth to the very spot you wish; you will, perhaps, find it, at first, twist and extend itself in your fingers, and then wish to attach itself to some contrary part; but as repeatedly as it extends itself around, or attempts to fix upon a wrong situation, you must as repeatedly draw it back and re-apply it to the proper part; by so doing you will find it will presently seize the precise spot wished for; when you find this you must not hastily let the leech go, for they will sometimes seem to seize the part with great avidity, and in a few seconds let go their hold; but when you are convinced the leech has good hold, you may then let go, and leave it to the employment it enjoys.

I here find it necessary to remark, that the small end of the leech is the head, whereas I have repeatedly observed that the greater part of the people, from the tail of the leech being much broader than the head, mistake the one for the other, and thereby occasion themselves a great deal of fruitless labor. When the animal has fastened himself, he generally expands the tail, and sometimes attaches it very firmly to another part of the skin, but without the least pain to the part; this hold, I have observed, the leech does not quit till it is charged with blood, and then drops off all at once.

I would here observe, that the quantity of blood the leech imbibes, is in general insufficient to answer the purpose: therefore, when the leech comes off, it is necessary to have a basin of warm water, and a sponge or rag, to keep bathing the orifice, in order to encourage the bleeding for an hour or two; if the orifice seem disposed to bleed any longer than wished for, apply a piece of lint, three or four times double, and bandage it up.

1045. *Singularly useful Properties of Garlic.*

The smell of garlic, which is formidable to many ladies, is, perhaps, the most infallible remedy in the world against the vapours, and all the nervous disorders to which women are subject. Of this (says St. Pierre) I have had repeated experience.

1046. *The Usefulness of two common Plants.*

Every plant in the corn-field possesses virtues particularly adapted to the maladies incident to the condition of the labouring man. The poppy cures the pleurisy, procures sleep, stops hæmorrhages, and spitting of blood. Poppy seeds form an emulsion similar to that from almonds in every respect when prepared in the same manner. They also yield, by expression, fine salad oil, like that from Florence. The blue bottle is diuretic, vulnerary, cordial, and cooling; an antidote to the stings of venomous insects, and a remedy for inflammation of the eyes.

1047. *To prevent Wounds from mortifying.*

Sprinkle sugar on them. The Turks wash fresh wounds with wine, and sprinkle sugar on them. Obstinate ulcers may be cured with sugar dissolved in a strong decoction of walnut leaves.

1048. *Chapped or Sore Lips*

May be healed by the frequent application of honey-water, and protecting them from the influence of cold air.

1049. Small Pox.

In Dr. Lort's copy of "Mead *de Variolis*," was written, what was termed "A curious and infallible preventive against ever catching the Small Pox," as follows:—

Two spoonfuls of red ochre, such as is used for marking sheep, infused in half a pint of ale, and taken seven mornings successively, fasting.

1050. Corns and Warts.

Apply soft brown paper moistened with spittle. A few dressings will remove them.

1051. A Corn Plaster.

One ounce of naval pitch, half an ounce of galbanum, dissolved in vinegar, one scruple of ammonia, and one drachm and a half of diachylon, mixed together.—*From La Forest 'L'Art de soigner les Pieds.*

1052. Against Burns or Scalds.

Plunge the part scalded into cold water as soon as possible. Wet it with linen steeped in rectified spirit or common brandy. Poultices and oily applications are to be avoided.

1053. A Receipt for the Colic in a Horse.

One table-spoonful of ginger beat and sifted, two or three table-spoonfuls of flower of mustard, a gill of gin, and a quart of warm ale, mix them together, and give them in a horn. In an hour or two walk the horse out, and repeat it the following day; *care should be taken that the horse drinks nothing but warmed water for two or three days after.*

1054. Distemper in Dogs.

Dr. Blaine has described the disease, called the Distemper in Dogs, with accuracy, and his medicines, in general, are successful: but a gentleman had administered Dr. Blaine's medicines to a favourite pointer, in the disease called *The Distemper*, but with no avail; the unvarying symptoms had come on, when the poor animal crawled into the field, and fell among some grass, attempting, but in vain, to eat it. The gentleman followed this suggestion of nature, and ordered a handful of grass to be cut in shreds of about half an inch long, and when mixed with butter, to be put down the animal's throat; the dose was repeated three times in every twenty-four hours, and a visible amendment almost immediately took place, which terminated in recovery."

1055. *To know whether a Dog is mad or not.*

Dogs suspected of being mad are frequently killed, leaving persons bitten in a dreadful uncertainty, whether the dogs were or were not really mad; the following experiment has been supposed conclusive on this head:—rub the mouth, teeth, and gums of the dead dog, if free from blood, with a little roast or boiled meat, and offer this meat, so rubbed, to another dog, who will eat it without reluctance if the dead dog was not mad, but will refuse it, and run away howling from it, if the dead dog was really mad. It may be further satisfaction to the parties concerned to keep the dog tied up for some days, if he eats the meat so prepared.

1056. *Method of rendering Assistance to Persons in Danger of Drowning.*

This desirable object appears attainable by the proper use of a man's hat and pocket handkerchief, which (being all the apparatus necessary) is to be used thus: Spread the handkerchief on the ground, and place a hat, with the brim downwards, on the middle of the handkerchief; and then tie the handkerchief round the hat as you would tie up a bundle, keeping the knots as near the centre of the crown as may be. Now, by seizing the knots in one hand, and *keeping the opening of the hat upwards, a person, without knowing how to swim, may fearlessly plunge into the* water with what may be necessary to save the life of a fellow-creature.

'If a person should fall out of a boat, or the boat upset by going foul of a cable, &c. or should he fall off the quays, or indeed fall into any water from which he could not extricate himself, but must wait some little time for assistance, had he presence of mind enough to whip off his hat, and hold it by the brim, placing his fingers within-side the crown, and hold it so, (top downwards) he would be able, by this method, to keep his mouth well above water till assistance should reach him. It often happens that danger is descried long before we are involved in the peril, and time enough to prepare the above method; and a courageous person would, in seven instances out of ten, apply to them with success; and travellers, in fording rivers at unknown fords, or where shallows are deceitful, might make use of these methods with advantage.

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